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Correspondence re: New York State Museum, "Groundwater supplies of Allegheny State Park". 1931-1934

Thwaites, F. T. (Fredrik Turville), 1883-1961

[s.l.]: [s.n.], 1931-1934

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OFFICE OF DIRECTOR

December 20, 1934

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

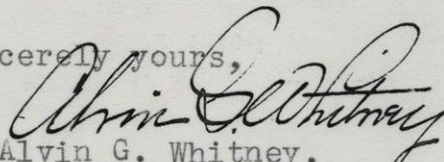
Under separate cover I am sending you page proof of your Museum Circular 11: Ground Water Supplies of Allegany State Park. Please correct and return soon as possible, because we have to send it to press by January 1.

Referring back to your letter of January 10, 1934 (misdated "1932"?) I find this concluding paragraph:

"I recently wrote to Mr. Lindberg at the park to ask how the wells showed up in 1933 after the rebuilding program. If there is space when the pages are made up I have suggested to Dr. Adams that I be allowed to add a brief statement on this matter. As "the proof of the pudding is the eating" it would seem that such is desirable if it can be done without too much expense."

Please indicate again whether you wish to purchase extra copies of the Circular, and how many. I am trying to ascertain just how many free author's copies will be allowed you.

Sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC

P. S. Could you perhaps insert the statement referred to, as a footnote, or if more than a few lines, add an Addendum, following Bibliography Page 62.

DEC 22 1934

Dr. Thwaites—

This is the galley proof
you read previously.
You may need it in
correcting page proof.
Be sure to return all.

It will not be possible
to purchase extra copies
of the Circular, but I
am just now advised
you will be allowed 100
free author's copies.
A. S. Whitney

WILLIAM H. RYAN, CHAIRMAN
CHAUNCEY J. HAMLIN, VICE-CHAIRMAN
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STATE OF NEW YORK



Martin E. Mercer.

~~Richard R. Allen~~
EXECUTIVE SECRETARY

ALLEGANY STATE PARK
CUBA RESERVATION
LAKE ERIE STATE PARK

CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION

RED HOUSE, N. Y.

January 8th, 1934.

Dr. F. T. Thwaites,
Science Hall,
Madison, Wis.

Dear Doctor;

I have just now received your letter asking for a summary of the summer tests. Thanks a lot for the information on the pump bases. We will try the hot roofing tar on any future rebuilding.

In re tests this summer. This summary is easy. Out of the entire number of wells tested and all wells were tested two times, once in May and later in July, only two of them came back at all bad. These were Camp BeeTeeVee kitchen well which showed bacteria count of 30 and on the B-Coli 7 of the ten portion showed positive and Hall Trail well which showed no B-Coli but innumerable bacteria. The average bacteria count for all wells was 2. If you wish it I will send you a detailed chart of the summer's tests.

Things are very quiet here right now. Having a light winter. One day the temperature went to -22 but our average now is 40 above and no snow.

We are quite anxious to see the report on the water supply so hope that as soon as it is ready you will furnish us a copy.

Sincerely,

O. E. Lindberg
O. E. Lindberg.

Post card Feb 28, 34

Note: Under date of January 8th, 1934 Mr. O. R. Lindberg, Chief Ranger,
wrote: "xxxxxxthisxxxxxxThisxxxxxx" Out of the

These were Camp Bee Tee Vee kitchen well ~~and~~ and Hall Trail well.

The average bacterial count for all wells was two." The writer understands that no work had been done in repairing these wells. Use of roofing tar to reenforce the rubber gaskets under pumps was recommended as it is difficult to make a tight joint under the rough castings.

⁴⁰
2 P. M. Dec. 29, 1934

Dr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Dr. Whitney:

Your letter of Dec. 20 came before Christmas but the proof sent by express on Dec. 22 arrived about 10 A. M. this morning. If I was to get this back before the end of the year I had to send it via air mail this afternoon which closes at 4: 45 P. M. ~~It~~ was necessary to skip over the proof rather more hurriedly than I would have like to. However, I have done my best and am sending the page proof herewith together with a short statement on the results of 1933 water tests. Gordie Atwater informed me that the 1934 ones were also satisfasotory but there was no chance to confirm this officially.

The number of free copies will be plenty.

The old galley proof and manuscript follow via express collect.

Wishing you a Happy New Year,
Very truly yours,

F. T. Thwaites

Oct. 2, 1933

Dr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Dr. Whitney:

Yours of the 26th arrived on Thursday but the circulars did not come until Saturday.

I was sorry to find that my revised copy of the references sent to Dr. Admas on March 4 and acknowledged by him on March 22 has been lost. Accordingly, I took from my copy the carbon of this list (substituting a corrected pencil copy of the old list) and am enclosing the same. I also made some corrections on this to fill out the blanks in titles where I had shortened them. I hope that this will prove satisfactory. You see, we are so used to U. S. G. S. and G. S. A. forms for references that it is hard to change!

Thank you for the circulars several of which were new to me.

I am glad to learn that my paper was on the way to publication for I had heard nothing for so long that I feared that it had been held up. Here, everything is at a standstill for lack of funds.

Sincerely,

F. T. Thwaites

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STATE ARCHEOLOGIST

OFFICE OF DIRECTOR

September 26, 1933.

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin

Dear Doctor Thwaites:

Your paper on Ground Water Supplies of Allegany State Park, 1932, to be issued as Museum Circular 11 (Circular 10 being Brewer's Oil and Gas Geology of Allegany Park), is in process of printing. However, the Department Editor has just returned the bibliography for more thorough standardization in harmony with our Museum publications.

As we are closely pressed, can you perhaps check this through and fill in the omitted details, which I have indicated on the MS pages 63-64, enclosed. The omitted data include: name of institution issuing a paper; complete paging where a whole document or book is listed; etc.

Sent separately
I also enclose copies of our recently issued Circulars 7, 8, 10, 12, and 14, the bibliographies of which are fairly well standardized according to our system. You may keep these for your reference.

If any of the above Circulars, or any other recent papers, seem to be desirable in the list, please feel free to add them.

With my thanks,

Sincerely yours,

Alvin G. Whitney
Alvin G. Whitney
Assistant Director.

AGW:MEB
Enc.

*Returned by CCA on Feb 28
ack Mar 22 FTT May 4*

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STATE ARCHEOLOGIST

October 2, 1933.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

Your letter of September 28 is here, and I am pleased to know that you have sent on to Tester the drill samples. Send on direct to me the remainder, by express collect. I appreciate your caution about shipment, as we have to be very careful on this point.

I will be much interested in seeing your paper on the Allegany terraces and on the Finger Lakes.

I am pleased to know that your paper - "Field Photography for Geologists", is practically completed. I am sorry that at present our printing funds have been so low that we cannot encourage the printing of the paper. Possibly later there might be a chance when conditions ease up. I am sorry that we are so close, as at present we have to refuse papers constantly.

I hear that some of the eastern colleges are just holding their own, and some have declined in students. I have not heard

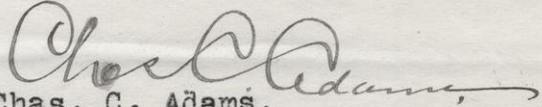
from the West.

I am pleased that your paper on ground water is moving along, and it ought to be out soon.

Congratulations on the new boy - and I bet he will be a geologist!

With best regards,

Very sincerely,


Chas. C. Adams,

Director.

P. S. The Allegany School had an excellent session and 34 students - the largest attendance.

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STATE ARCHEOLOGIST

OFFICE OF DIRECTOR

October 6, 1933

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

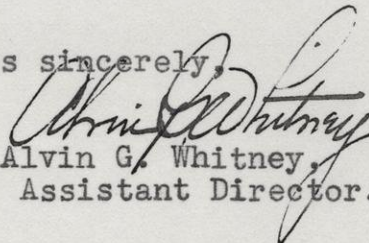
Dear Dr. Thwaites:

Your reply of October 2, and corrected copy of the 2-page bibliography for your Circular 11: Groundwaters of Allegany Park, received, together with the original MS. pages which I sent you.

I have kept the latter, carefully corrected, and enclose the carbon copy for your file.

The corrected copy you sent to Dr. Adams last March I find in my file. I had overlooked the fact that it was not a duplicate of the original sheets, as Dr. Adams handed me the whole MS. without comment on this matter. Anyhow, it is now in the best shape possible, and I think the printed circular will be issued very soon.

Yours sincerely,


Alvin G. Whitney,
Assistant Director.

AGW:MC

DEPARTMENT OF GEOLOGY

GEORGE F. KAY
ARTHUR C. TROWBRIDGE
JOSEPH J. RUNNER
ALLEN C. TESTER
ARTHUR K. MILLER

THE STATE UNIVERSITY OF IOWA
IOWA CITY

New York

March 8, 1933

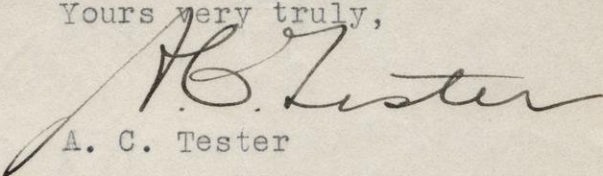
Prof. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin

Dear Professor Thwaites:

Since receiving your letter of February fourth I have tried to find some paper envelopes like you described for handling the samples from the wells at the Allegany State Park. In fact, I can not find ~~any~~ cloth bags in sufficient numbers to handle this set of samples. If you can, however, provide these bags, I will return them to you at the earliest possible time.

Thanking you again for your kindness and cooperation, I remain,

Yours very truly,


A. C. Tester

ACT:A

New York

Sept. 27, 1933

Dr. A. G. Tester,
Department of Geology,
University of Iowa,
Iowa City, Iowa

Dear Tester:

At last, after many postponements, I have divided the samples from the Allegany State Park wells. Unless I hear to you to the contrary I will forward your half express collect and the remainder I will send to Albany for permanent storage. One of the greatest marvels I discovered in the East is that they still hold to the old outworn idea that well drillers are all liars and that samples from cable tool holes are worthless anyway! I did my best to correct these superstitions but apparently in vain.

I have never heard of my report and wonder why it was held up after it had been decided to rush it through. Can think of two perfectly good reasons.

During the summer I was numbered among the unemployed and now have only seven students to look after. However, I was by no means idle as we had an increase in the family, another boy now a little over two months old and weighting about 14 pounds.

I had quite a visit with Trowbridge while on the Kansas Geological Society trip to the Ozarks which trip I was able to make on account of reduced railroad fares.

I often wonder how things were at the Allegany School. The notice I had said nothing about the enrollment.

Sincerely,

F. T. Thwaites

P. S. The bags need NOT be returned for they are second hand now.

N.Y.

Sept. 28, 1933

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

At last, after many delays, I split the Quaker Lake test hole samples with Tester and packed the remainder for shipment to you. However, in view of the delay in doing this and the well-known financial condition I thought it best to get your approval before shipping express collect even if the sum involved is trivial in ordinary times. I want to add or rather to repeat that samples from cable tool holes ARE reliable provided they are honestly taken which lots of old samples were not.

On my table I have the material for the write-ups of both the Allegheny terraces and the Finger Lake theory. Readings for the latter are well along and you should have these papers by the end of the year. I will send the field notes with them. Your suggestions on final disposition of these reports will then be appreciated. I do not regard either one as anything but progress statements.

When in your state I recall that you were interested in my manuscript on Field photography for geologists. This is now revised and all but one of the illustrations are in final form. If interested in possible publication of this manuscript I will be glad to send it on soon.

I was numbered among the unemployed but not idle all summer and now have only seven students to care for. We had a new member of the family arrive on July 10, another boy who now weighs about 14 pounds and has two teeth.

With best regards,

Sincerely,

THE UNIVERSITY OF THE STATE OF NEW YORK
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March 22, 1933.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

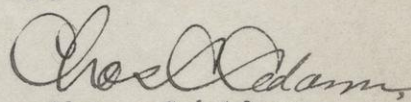
Madison, Wisconsin

Dear Mr. Thwaites:-

Your letter of March 16 and the revised pages of your manuscript have been received. Your remarks will be used in the final adjustment of the manuscript. Many thanks for your suggestions. I hope now that we may hasten this paper for publication as much as possible.

Yes, the financial situation seems to be much the same everywhere; and we are certainly hoping for real improvements.

Very sincerely,



Chas. C. Adams,
Director.

March 16, 1933

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Yours of the 13th is at hand with Mr. Hartnagel's suggestions.

With regard to numbering of tables as figures I did this because of a pencil notation of yours on my rough draft which you want over at the Park. I soon saw that it had not been done in other reports. Any change you desire will be all right with me.

In regard to Fig. 15 I fully realize its imperfections. It did not seem possible to identify the readings where plotted for any system of identification numbers would render the diagram unreadable. If you check against the table, however, it is not hard to identify the source of the data for any given point. The two lines with dates attached represent the change in the curve above depth 60 between the two observations at Barton Traylor Camp well, the shallowest in the Park. In spite of all the shortcomings of this diagram I feel that it illustrates an important principle in the relation of temperatures to depth. This matter of water temperature is bound to become of great importance as soon as air conditioning comes into general use. I find that many well drillers and even some engineers do not understand the fundamentals of this matter. The legend should refer to the table.

A word may be needed about the map. I could not use the topographic sheets as a base because the culture on them is so far out of date. Also I could not name all the geographic features on the map for fear of overcrowding it.

The change of page 7 of the manuscript meets our approval. I think the last sentence of the first paragraph on page 8 might best be left out and the pencil change also, for the matter is not very important. Any change you may make will be all right with us. Other suggestions are taken care of with red pencil on the manuscript.

I may have forgotten to tell you that Mrs. Thwaites was formerly editor for the Wisconsin Geological Survey.

The local "State of siege" was lifted yesterday and we got our pay. Now we can spend a dollar without wondering if it may be the last we would ever see! True, we were prepared, but one just could not help worrying about the future.

Sincerely,

ms. pages enclosed

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March 13, 1933.

OFFICE OF DIRECTOR

Mr. Frederick T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

Mr. Hartnagel has just gone over your manuscript on the Ground Water of the Allegany Park, 1932, and makes certain suggestions as follows:-

"I have examined this manuscript and have indicated at a number of places certain suggested changes. It would seem that certain figures such as Nos. 1, 14, 16, 18 and 23 instead of being retained as figures should be printed as tables. Several of these so-called figures cover several pages."

"The diagram, Figure 15, relating to depths and temperatures in wells, appears to be wholly inadequate without any careful explanation as to what the figure really represents. The explanation of this figure on page 18A of the manuscript is concerned chiefly with general principles rather than with an explanation of the diagram. Additional explanations on pages 18 and 19 of the manuscript leaves much to indicate how the figure was constructed. The legend accompanying Figure 15 does not clearly explain the locations of the wells or when the readings were made. The dates July 18 and August 25 are likewise confusing. Without more adequate explanation the figure had better be omitted. The figure is admittedly based on so many sources of error that it has little value as it stands. It would seem that if this figure is used the legend could be placed within the body of the diagram. This would give ample room to print the information on page 18B."

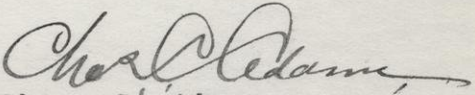
March 13, 1933.

"The drawings with the exception of the one marked 28 "Springs and Wells in Allegany State Park", should be reduced to page size. I note that they are lettered large enough to easily take this reduction. Figure 28 should be reduced to height of page. It then could be folded once to the left".

"It is unfortunate that the period of observation was limited to about two months and that facilities for rainfall measurement were so limited. The paper as a whole contains much information of value, especially to the Park authorities".

I am sending on to you pages 7 and 8 which you may care to adjust; the other minor items will be attended to here. I am hastening this on to you so that we can get the paper in final shape as quickly as possible, and hasten it to the printer.

Very sincerely,


Chas. C. Adams,

Director.

2 enclosures

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March 8, 1933.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

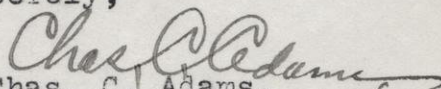
Your letter of March 4 is here, and I wish to
thank you for the additions to the list of references to the
literature.

I note what you have to say about the materials yet on
hand.

I have just received a letter from Mr. Congdon, stating
that they have been drilling up at the head of Red House, this
last ^{winter} month, and have found gas in 2 new wells and a dry hole.
Nevil France drilled a dry hole on the flats below the dam, down
1,800 feet.

We are also in a bank moratorium and all that implies; and
no one seems to enjoy it.

Very sincerely,


Chas. C. Adams,
Director.

March 4, 1933

Dr. Charles, G. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

In reply to yours of February 28 I am enclosing revised list of references. I had left the arrangement to your editor as I did not find citations of many of these publications in any of your publications which I had. I am still not at all sure about exact typography of some, but looked up the pages on the catalogue cards in the library. We are so used to U. S. G. S. and G. S. A. methods of citation here that it is very hard to change! However, I am glad to have had a chance to correct some slight errors in the first copy which I discovered.

The material which I still have comprises: (a) samples from the two test wells, and (b) field notes taken while on School field trips. If I do not hear from Tester by June I will send you the samples. The notes I would like to keep until I can write up a summary of the results which may be of some value to Tester and possibly to others. I also want to write up a short discussion of the theory of interglacial stream erosion in western New York for consideration of those interested in the problem of the abnormal valleys of that district.

We are now in the midst of a bank moratorium with the resulting hardship to students who were left without any cash. Fortunately we were prepared for such an emergency at home. But the future of the University looks black and the end of the Geological Survey seems probable. Let's hope for the best and carry on as best we may,

Sincerely,

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NOAH T. CLARKE
STATE ARCHEOLOGIST

February 28, 1933.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

Your letter of February 25, your manuscript and other materials arrived safely yesterday. I am much pleased to have the report, as I hope we can publish it promptly. I am also pleased to see the report prepared in such good condition. Of course I have only had a chance to glance over it, but it certainly looks like a careful study. I will submit it promptly to Mr. Hartnagel, so that we can hasten the printing, as the results should be made available as soon as possible.

I appreciate your suggestions for future work at the Park on the water problem.

I am much pleased to know that you feel that your work in the Park was worth while and that you learned something of value. I believe that every one who works there at the School feels that there is real work to do and that they have the facilities to get results of value.

February 28, 1933.

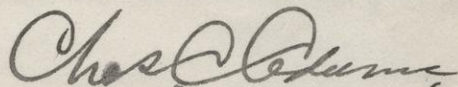
I will be pleased to keep you in mind for work in the future.

I note that you have some well logs which you will send on later, and plan an account of the field trips. I will be interested also in your ideas on interglacial stream erosion.

You did not seem to get the idea of our method of listing the Bibliography, so I am returning these pages, as you no doubt have the publications at hand, to add the pages and places of publication of books. I am sending copies of Circulars 7 and 8 which illustrate this.

Brewer's paper will be in print very soon. The page proof is in his hands now.

Very sincerely,


Chas. C. Adams,

Director.

Pages 63 and 64, of
Bibliography returned

Circulars 7 and 8 sent
for reference

RAILWAY EXPRESS AGENCY

INCORPORATED

UNIFORM EXPRESS RECEIPT—NON-NEGOTIABLE—TERMS AND CONDITIONS

1. The provisions of this receipt shall inure to the benefit of and be binding upon the consignor, the consignee and all carriers handling this shipment and shall apply to any reconsignment, or return thereof.

2. In consideration of the rate charged for carrying said property, which is dependent upon the value thereof and is based upon an agreed valuation of not exceeding fifty dollars for any shipment of 100 pounds or less and not exceeding fifty cents per pound, actual weight, for any shipment in excess of 100 pounds, unless a greater value is declared at the time of shipment, the shipper agrees that the company shall not be liable in any event for more than fifty dollars for any shipment of 100 pounds or less, or for more than fifty cents per pound, actual weight, for any shipment weighing more than 100 pounds, unless a greater value is stated herein. Unless a greater value is declared and stated herein the shipper agrees that the value of the shipment is as last above set out and that the liability of the company shall in no event exceed such value.

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5. Packages containing fragile articles or articles consisting wholly or in part of glass must be marked and be packed so as to insure safe transportation by express with ordinary care.

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express company's line by a carrier other than an express company. If not so marked shipments will be refused.

7. As conditions precedent to recovery claims must be made in writing to the originating or delivering carrier within nine months after delivery of the property or, in case of failure to make delivery, then within nine months and fifteen days after date of shipment; and suits shall be instituted only within two years and one day after the date when notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof.

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10. If the destination specified in this receipt is in a foreign country, the property covered hereby shall, as to transit over ocean routes and by their foreign connections to such destination, be subject to all the terms and conditions of the receipts or bills of lading of ocean carriers as accepted by the company for the shipment, and of foreign carriers participating in the transportation, and as to such transit is accepted for transportation and delivery subject to the acts, ladings, laws, regulations, and customs of overseas and foreign carriers, custodians, and governments, their employees and agents.

11. The company shall not be liable for any loss, damage, or delay to said shipments over ocean routes and their foreign connections, the destination of which is in a foreign country, occurring outside the boundaries of the United States, which may be occasioned by any such acts, ladings, laws, regulations, or customs. Claims for loss, damage or delay must be made in writing to the carrier at the port of export or to the carrier issuing this receipt within nine months after delivery of the property at said port or in case of failure to make such delivery then within nine months and fifteen days after date of shipment; and claims so made against said delivering or issuing carrier shall be deemed to have been made against any carrier which may be liable hereunder. Suits shall be instituted only within two years and one day after the date when notice in writing is given by the carrier to the claimant that the carrier has disallowed the claim or any part or parts thereof. Where claims are not so made, and/or suits are not instituted thereon in accordance with the foregoing provisions, the carrier shall not be liable.

12. It is hereby agreed that the property destined to such foreign countries, and assessable with foreign governmental or customs duties, taxes or charges, may be stopped in transit at foreign ports, frontiers or depositories, and there held pending examination, assessments and payments, and such duties and charges, when advanced by the company shall become a lien on the property.

To Destination Office

Consignee

Enter Date Shipped

Street Address or Non Agency Destination

Advances

Name of Forwarding Office

IN: 5460

DO

(636-P) Madison, Wis.

Piece-s	Article	Description	Weight	Express Charges
	Rail		5	USE THESE
	Pa			Total
				SPACES
Shipper	Class	Paid in Part	C. O. D.	
Shipper's Street Address	Scale or Rate	Verified by	Return Charges	Write in YES or NO
	COLLECT			
	(Original)			

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(Form 11)

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RAILWAY EXPRESS AGENCY

INCORPORATED

Received shipment described hereon, subject to the Classifications and Tariffs in effect on the date hereof. Value herein declared by Shipper to be that entered in space hereon reading "Declared Value," which the Company agrees to carry upon the terms and conditions printed hereon, to which the Shipper agrees and as evidence thereof accepts and signs this receipt.

Number Pieces

Hour

For the Shipper

For the Company

Feb. 25, 1933

Dr. G. C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

At last, after many delays, I am sending you via express collect the report on last summer's work at the Allegany School of Natural History.

The roll contains: (a) tracings for illustrations (legend is to be cut off when hat is made), (b) maps given to me by Brewer and I think his personal set, (c) topographic sheets of the Park showing with certain errors the lots (not for publication), and (d) tracing of information on which figure 4 is based (not for publication).

The box contains: (a) two copies of manuscript without any blue-prints and with photographs only in one, (b) my field notes, (c) field notes by Brewer which may be his personal copy, (d) extra notebook paper not used, (e) copy of confidential report by Allen with photostat map, (f) copy of Brewer report, (g) analyses of waters made at Saratoga Springs (original), and (h) original copy of 1932 sanitary analyses of waters in the Park (not for publication).

I did the typing myself, also all the drafting. Mrs. Thwaites has edited the manuscript very carefully and Dr. Nichols of our State Laboratory has just finished reading the manuscript making a number of suggestions. Prof. E. B. Fred in Agricultural Bacteriology also helped greatly.

I suggest that more work could be done on (a) quantitative relation between spring flow and rainfall, (b) same for chemical composition of water and discharge, (c) same for bacterial quality of water, rainfall, discharge and time of year, (d) water level in an unused well and rainfall, (e) soil pollution around a known source, and (f) bacterial growth and survival in natural soil of the Park. I feel that much more observation will be needed before the question of subsurface contamination is settled. It is possible that such studies could be carried out with the aid of the laboratory at Olean.

I feel that I learned a great deal as a result of my visit to New York State and that if anything else for which I am qualified comes up that you will keep me in mind.

The test well samples are still here for Tester has not sent any bags or envelopes for his share. I also have some notes on the well logs which I will send later. The information is already in the report. I also have the notes I took on field trips for I hope to write up a brief statement on the results which I will send you. It need not be published unless you desire it. I may also write up a brief statement of the hypothesis of interglacial stream erosion in western New York when I can get around to it.

Sincerely,

Feb. 4, 1933

Dr. A. C. Tester,
Department of Geology,
University of Iowa,
Iowa City, Iowa

Dear Tester:

I have received authority from Dr. Adams to divide the Quaker Lake test hole samples with you, sending the rest to Albany for storage. Have you any of the envelopes like those commonly used by oil companies? If not I will use some of our sacks but it would save a lot of time if you have any of those. The total number of samples is 89. I have made a blueprint log of the first hole, now designated by the Park authorities as Q-26 and as soon as I finish one for the other hole, Q-27 I will send you both. I have also prepared a cross section of the valley through the two wells. This will go in soon with the report but Dr. Adams will undoubtedly furnish you with a blueprint copy. The detailed logs will be printed and not published in the form they are on my tracings.

I am very glad to hear that you plan to finish the Randolph quadrangle. Last summer I spent two days with Prof. Ploger in the Cattaraugus quadrangle to the north and found that we were in close agreement except that I attached more importance to interglacial erosion and less to glacial. Lobeck seems to have missed the fact that there are terraces of two glacial stages in the Allegheny bottoms. I class the gravel pit at Steamburg as an erosional remnant of a pre-Wisconsin terrace, also the supposed moraine at Elkdale and sold the latter idea to Ploger, by the way.

Sincerely

Madison, Wisconsin
January 27, 1933

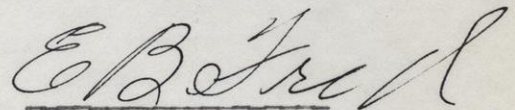
Dr. F. T. Thwaites
Science Hall
University of Wisconsin

Dear Doctor Thwaites:

The distribution of bacteria at various depths in soil is discussed in detail with references in "Principles of Soil Microbiology", Second Edition by S. A. Waksman, published by Williams & Wilkins Company, Baltimore. The first chapter, especially pages 31-33 of this book goes into detail regarding distribution of these organisms. 1932

If you do not happen to have a copy of this book, I have a copy in my office and I think Mr. Hean has two in the Agricultural Library.

Yours very truly,



E. B. Fred

EBF vh

Jan. 27, 1933

Mr. O. R. Lindberg, Chief Ranger,
Allegany State Park,
Red House, New York

Dear Mr. Lindberg:

I wish to thank you for yours of the 21st.

The log came from Mr. Hulme today and I have already put it in my report. The cross section of the valley where the wells are can now be drawn which completes the illustrations.

I have straightened out the confusion about the Beehunter wells. The error must have been made by Allen in copying logs. At first I thought he was right because he did not put the deepest well on the lowest ground. Your check has shown that that is the case, however.

We too have had very little winter since the second week before Christmas. The lakes are opening along the edges and we have not a single speck of snow on account of several rains. With the wind in the northeast and a raw one at that conditions may change before this gets in the mail!

Everyone here is gloomy over the demand to reduce the University appropriation by two millions. But I have lived to not worry over what a legislature plans, only over what it has done when it quits. Meantime, we are trying to carry on and pretend that we do not care!

My report should be ready to go to Dr. Adams in a few days. Mr. Tester tells me he will take my place at the School next year.

Sincerely,

Department of Geology,
University of Wisconsin,
Madison, Wisconsin,
Jan. 27, 1933

Mr. William H. Hulme,
32 Leland Ave.,
Bradford, Pennsylvania

Dear Mr. Hulme:

I wish to thank you for your letter of Jan. 21 containing the log of the second Allegany State Park test and attached note. Sorry you have been ill but guess most everyone has been this winter. We are all right again. It was a mistake about any samples having been lost.

I was much pleased to learn that this well was nearly twice as good as the other, over twice in specific capacity, in fact. I will suggest that the two wells could be used to help out the spring supply whenever there is danger of the Run going dry.

With regard to shooting I have never had any experience in shale rock. Last spring they shot the new well at Plymouth, Wisconsin, which is in hard brittle limestone. Mr. Sanders, the Superintendent, told me that they had good results. What I would fear is loss of tools in cleaning the hole because shots will certainly dislodge large chunks of rock. However, it might be worth trying on the first hole if it appeals to you.

The report is now almost done and I hope to have it off my mind in a few days. I often wish I could see some of my friends at the Park again. Mr. Tester is to take my place at the School next year I hear.

Sincerely,

F. T. Thwaites

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
NEW YORK STATE MUSEUM
ALBANY, N. Y.

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NOAH T. CLARKE
STATE ARCHEOLOGIST

January 25, 1933.

OFFICE OF DIRECTOR

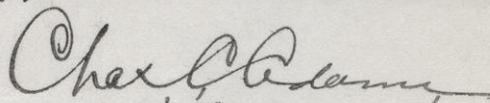
Mr. Frederick T. Thwaites,
Department of Geology,
University of Wisconsin,
Madison, Wisconsin

Dear Mr. Thwaites:-

Doctor Lester has written asking that you be authorized to send him some of the drill samples from the Allegany Park. I gladly do so.

He has, no doubt, informed you that he plans to complete his Randolph Quadrangle Report this summer. We need this report very much, as you realize very well.

Very sincerely,


Chas. C. Adams,

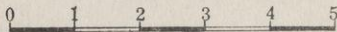
Director.

East Randolph

- 13—Presbyterian Girls Camp.
- 14—Rental Office—Ranger Station.
- 15—Cattaraugus Co. Health Camp.
- 16—American Legion Camp.
- 17—Polish Boy Scouts Camp.
- 18—Trailer Camp.
- 19 to 23—Public Picnic Grounds.

Randolph

Scale of Miles



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STATE OF NEW YORK



RICHARD J. HALEY
EXECUTIVE SECRETARY

ALLEGANY STATE PARK
CUBA RESERVATION
LAKE ERIE STATE PARK

CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION

RED HOUSE, N. Y. January 21, 1933.

Dr. F. T. Thwaites,
R-4
Madison, Wisconsin.

Dear Doctor;

I have just received your letter of the 19th and am surprised that Mr. Hulme has not sent you the log of Well Q-27. Can find no record in the offices here so think he must have forgotten it. I am writing him today to hurry the log up-to send each of us a copy or if he wishes, send me the log and I will make copies. Sorry the report is being held up on that account and will see that you get the log as soon as possible.

In re Well R-6. This is located at the camp of the former general manager of the Smith Chemical Company. The camp is rented out to a group of Salamanca business men at present. Being only 46 feet deep and situated within fifty feet of Red House Creek, I am surprised that it has always tested so well, also considering that there is hardly any rock or clay in that formation. Practically all sand and gravel. The elevation is about 1343 feet. The enclosed portion of the Park map will show you about where it is located.

I have checked over, very carefully, the depths of the Beehunter wells (both in lists and logs) and find them as follows: R-10, Beehunter North, depth-129; R-11, Beehunter Center, depth-75; R-12, Beehunter sth-east, depth-102; R-13, Beehunter sth-west, depth-75.

No more work has been done, since I wrote you last, in rebuilding well tops but this will probably be resumed as soon as the weather permits. All toilets have been cleaned, however, this work being completed today. Work on the water line will be resumed soon if this weather continues.

We have had no winter here since November. Today (average for the past two months) the temperature is 44 degrees, no snow, roads very muddy and, on the lake, about three inches of slush ice--all that remains of our Thanksgiving Day freeze.

Sincerely,

O. R. Lindberg
O. R. Lindberg.

Jan. 19, 1933

Mr. O. R. Lindberg, Chief Ranger,
Allegheny State Park,
Red House, New York

Dear Mr. Lindberg:

I am now hard at work on the final copy of the report on my last summer's work and what is delaying matters is chiefly that I have not heard from Mr. Hulme about the second test well, Q-27. Could you kindly persuade him to let me have the log and results of the test?

In making up my map I note that I do not have the location of the Newhall well, R-6. I find only a notation that is near the old chemical plant and that is marked with a question. A description of its location in reference to other wells would be greatly appreciated.

In checking notes I am strongly inclined to think that you have interchanged the depths of Beshunter North and Beshunter southeast (R-10 and R-12). Your figures do not agree with those copied from Allen and I am in some doubt which is right.

Hoping you can set me right on above points and thanking you again for the most valuable help you have given me,

Sincerely,

Jan. 5, 1933

Mr. W. H. Hulme,
32 Leland Ave.,
Bradford, Pennsylvania

Dear Mr. Hulme:

I received the samples from the second test in Allegany State Park and have been waiting to make up blueprint log until I received your log. I wish to thank you for your cooperation in securing this information. I have examined the samples and found that the sandstone at 85-95 is missing in the second hole. I feared that this might make it even drier than the first. Will be pleased to hear of results in case you shoot one or both holes. In such rocks I have every reason to think that good results are possible. They shot a well at Plymouth, Wisconsin, in limestone last spring and for a wonder had no fishing jobs while cleaning out. They claim a marked increase in capacity. Shots were located near to water-bearing crevices.

My report is nearing completion now so will be glad to hear from you at an early date.

Wishing you a Happy New Year,

Sincerely,

Jan. 5, 1933

Mr. O. R. Lindberg, Chief Ranger,
Allegany State Park,
Red House, New York

Dear Mr. Lindberg:

I delayed thanking you for yours of Dec. 24 with enclosed information in hopes I would hear from Mr. Hulme. As I have not heard I will write to both this morning. The information proved most helpful. I am changing my map and tables to conform to the the numbering system.

With regard to the three wells which did not clear up I talked over the matter with Mr. Nichols of our State Laboratory. In spite of the fact than one ounce of calcium hypochlorite is supposed to sterilize 1000 gallons of water he thought that your suggestion that not enough was used might be correct on account of fibrous vegetable growth in some wells which is not easily penetrated. He also suggested that it is a good idea to try normal well water with the orthotolidine indicator before chlorinating for some waters always show a faint yellow color which might make it hard to determine the time when all free chlorine is pumped out. I also discussed the work in the Park with Messers Warriek and Tully of the State Board of Health and they also agreed that you are on the right track. I have been hard at work on my report and have done a lot of reading. I find that little definite is known about subsurface contamination but hope to be able to make further suggestions for use on wells which do not clear up after treatment now given them, if such there be.

I often wish I could drop in at the Park and see how things are going. Wishing you a Happy New Year,

Sincerely,

Thank you also for the sampler from hole #2

WILLIAM H. RYAN, CHAIRMAN
CHAUNCEY J. HAMLIN, VICE-CHAIRMAN
GEORGE H. ANSLEY, SECRETARY
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WILLIAM J. WELLER

STATE OF NEW YORK



~~DELOOS-SIMPSON,~~

~~CHIEF ENGINEER-TREASURER~~

ALLEGANY STATE PARK
CUBA RESERVATION
LAKE ERIE STATE PARK

CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION

RED HOUSE, N. Y.

December 24th, 1932.

Dr. F. T. Thwaites,
R. 4
Madison, Wisconsin.

Dear Doctor;

I do not know if Mr. Mattison or Mr. Haley have answered your request for additional information on our well numbering system. I have drawn up the enclosed chart for the benefit of the man who is handling the wells and latrines and made some extra copies. There has been a slight change in personnel, that is, Boyer, who had charge of plumbing and rebuilding well tops, etc. has been laid off and William Remington, the man who was building the tops when you were here is in charge of the work now. A very good man to work with and am anxious to give him all the information I can.

We have numbered the wells as per the chart by painting a white background on the pump and on the wooden shelter and painting in the number and depth of the well with black paint. This has been done in both the Red House and Quaker sections. The same system has been used on the toilets.

The work on the wells has been discontinued for the winter, 23 of them worked over. Remington is busy now cleaning latrines and has nearly finished on the Quaker side of the hill. Expect to be all finished up by March 1st.

Mr. Hulme said he would mail you direct the log of well Q-27. Suppose you have received it by this time.

Although it is rather late, wish you a very Merry Christmas and Happy New Year.

Sincerely,

O. R. Lindberg
O.R.Lindberg.

Dec. 8, 1932

Dr. Chas. C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

In reply to yours of Nov. 30 and Dec. 5 I want first to thank you for the publications you kindly sent me.

In regard first to the soils man, as you have probably found, men who are experienced in both soils and geology are not so common as the close relation of the two subjects would lead one to expect. I want over to see Dr. Whitson, the head of the soils work at the University and head of the now defunct state soil survey. He suggested three men who had worked for him, first Isaacson, also Gaylord Volk, and a White Russian by the name of Wilde. All, I think, of them worked this past summer on the Land Economics Survey in Langlade County, some work carried on by the State Agricultural Department which seems not to be directly connected with the University College of Agriculture but cooperated with them at times. All are at present working up the results of the last season's field work which had to do with the separation of agricultural and forest lands. Whitson seemed to be anxious to keep both Wilde and Volk for the next summer provided any work is done which at present seems doubtful. Dr. H. R. Aldrich, Assistant State Geologist, was in the party with all these men last summer.

Now as to Wilde, I have never met him and know nothing of his qualifications except that Whitson thinks highly of him. I think that the foreign training is probably broader than that of most American soils men. Volk took Mapping with me (I think, but there are two brothers) and considerable soils mineralogy but nothing else beyond general geology. Isaacson worked for some years on the soil survey in Illinois. He came here last year and took both Mapping and Glacial Geology under me. His work was very good and during the week in camp at Devils Lake he got along well with the others. Whitson and Aldrich also speak highly of him. What experience these men have had in teaching I do not know.

I cannot speak with any certainty of the time it would take to make a soils survey of the Park. It might take as long as the survey of vegetation but I doubt it. Conditions are so uniform over large areas that I should think that a season might finish the work. I doubt that the road material work would take long for there is little good gravel in the park and less hard rock. What they need is a crusher and screens.

I did not mean that the log would not be published for the test hole but simply not the typewritten copy with graphic section now made. It will be put in the report in some other way.

It occurred to me that Tester might like to get part of the samples provided he expects to finish the report on the Randolph quadrangle. As there seemed to be some question about this I have not yet written to him.

Sincerely,

Dec. 8, 1932

P/S

After closing the letter I read it over and saw that I had forgotten to mention another possible soils man who was recommended by Dr. W. J. Head of our Department. This is Alford Leahey, University of Alberta, Edmonton, Alberta. He is now teaching there but was here for a time last year. I do not think that he took a degree while here. I did not get to know him personally but his roommate spoke highly of him.

I do not feel like making myself responsible for any of the above mentioned prospects for I know little of their personalities and how they would get along at the School under conditions so different from those here. I thought first of Isaacson because he had taken more work under me than any of the others. He will be laid off here soon when funds begin to run low and was expecting to go to his sister's somewhere in Ohio. Some of the men mentioned certainly might not care to go so far for a two month's job. I suggest further investigation from those who know these men better. I think Isaacson would be all right, however.

better. I think Isaacson would be all right, however.

I have been very busy lately, I have been working on my book "The History of the United States from 1789 to 1860". I am now at the end of the first volume, which covers the period from 1789 to 1800. I have also been writing some articles for the "North American Review".

[illegible]

1911年

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THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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NOAH T. CLARKE
STATE ARCHEOLOGIST

December 5, 1932.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

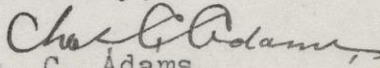
Your letter of December 2 is here with the blue print of the well section and the copies of your letters to Haley and Lindberg. Many thanks for the lay of the land. I think it was an excellent idea to send on the record at once to the Park officials, so that they can go ahead with their work.

I think you are quite right about Floger and Gordon being submerged with their classes.

You can judge best about ^{publishing} ~~pushing~~ the log, as you know about the older ones. A few careful and accurate ones will no doubt be of much value.

Send on, when you are ready, your samples, and any other materials, by express collect directly to me at the Museum.

Very sincerely,


Chas. C. Adams,
Director.

Dec. 2, 1932

Dr. G. G. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Enclosed please find copies of blueprint log of No. 1 test hole near the School in Allegany State Park and of some letters in regard to it. I felt that it was desirable to forward copies of this log at once to both the Park authorities and the driller for the reason that if it is to be shot this fall I did not want to hold up the work any longer. I have been so busy that I did not get the samples looked over as soon as I wanted to. They took longer than samples from a section I know better. You will note that accurate geologic data can be secured from churn drill samples when the same are carefully and honestly taken. If there were as much caving as some people seem to think then a driller would not dare to run tools into the hole. If he did it would be just one fishing job after another.

The report is now on my desk for immediate consideration. Infact I have already finished one of the drawings and checked the figure numbers and chosen the photographs. I have dropped everything else but my school work and rush work on well records here in order to push this report. Mrs. Thwaites would not accept an invitation for the evening the other day for she said that I would spend the time worrying about the New York report!

I have not heard from either Floger or Gordon since I sent them some photographs. If they have been as busy as I have been I can see why.

It is not my intention at present to reproduce the log of the test hole as it stands but to draw a section through the two holes across the valley but this conclusion is subject to revision. Any suggestion will be appreciated.

Shall I send you the well samples? They are now placed in cloth bags with tags. Any if so how shall I send them? Also how shall I send the final report together with notes, drawings, etc.?

With best regards,

Sincerely,

Mr. W. H. Hulme,,
32 Leland Ave.,
Bradford, Pennsylvania

Dear Mr. Hulme:

Enclosed please find copies of blueprint log of first test hole near Quaker Lake, Allegany State Park, New York and of letter in regard to same to Mr. Haley. I trust that you may find both of value and with to thank you for your aid in securing this valuable data.

I was thinking afterward that some of the well drillers journals might like to publish some of your experiences in drilling under fire during the World War if you ever care to write them up. If you should care to do so I think I could arrange for publication.

Hoping that you have better luck with the second test,

Very truly yours,

F. E. Thwaites, Geologist in charge of
well records, Wisconsin Geological Survey

Dec. 2, 1932

Mr. R. J. Haley, Executive Secretary,
Allegany State Park Commission,
Red House, New York

Dear Mr. Haley:

Enclosed please find blueprint log of the first test hole above Quaker Lake. I am also sending a copy to Mr. Hulme and to Dr. Adams each.

With regard to shooting to increase the flow of water I would place most reliance on the opinion of an experienced well shooter of which there must be a number at Bradford if Mr. Hulme does not want to do this work himself.

The unweathered condition of the rocks below the depth of 50 feet is not favorable for large production. It seems strange that there is no water in the rocks above this depth but as there are no springs below the dam this should be expected. The sandstone formation from 85 to 95 feet depth looks the most best and it is significant that water was found both above and below it. Grooves which contain water are most common near to sharp and sudden changes in the character of the rock such as occur here. My personal opinion is to shoot from 80 to 100 feet depth. I do not think that the water at 205 to 210 amounts to much and doubt seriously that it is worth the cost of a shot.

I feel that it is likely that shooting, if properly done, might easily increase the yield 50 percent. As to the time of the test it is undoubtedly true that the underground waters are at almost their lowest level in the fall, and it must also be realized that the last three years have been rather short in rainfall all over the country. This fact also occurred to me and I feel that it is quite possible that the amount of water will prove to be greater at other seasons although deep waters like this do not show seasonal effects to as marked a degree as do springs.

My feeling is that if two wells near the upper end of the lake after shooting are not enough the School well might be deepened and connected to the mains. If in the future sanitary sewers are needed in the lower part of the Quaker Valley then the mains might be divided and the lower end made into a separate or semi-separate system supplied by a well in the gravel near Barton Trailer Camp with emergency connection to the upper system through a reducing valve.

I hope that the second test turns out better and wish to thank you again for your cooperation in securing this important information.

From Mr. Lindberg's letter I infer that a new system of numbering the Park wells has been adopted. If so would be glad to learn more about it so I could use it in my report.

Very truly yours,

Copies to Dr. Adams and Mr. Hulme
Copies to Dr.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
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ALBANY, N. Y.

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ASSISTANT STATE BOTANIST
DAYTON STONER
ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

November 30, 1932.

OFFICE OF THE DIRECTOR

Mr. F. T. Thwaites,
Department of Geology,
University of Wisconsin,
Madison, Wisconsin

Dear Mr. Thwaites:-

I am yet looking for a man for the soil survey at the Allegany Park and School. You know conditions down there and that we need a good scientific soil survey that will also help on the question of road materials, as that is a practical Park problem.

Lobeck suggested, probably on your recommendation, Mr. M. R. Isaacson of the Soils Department, University of Wisconsin. Please tell me about him and how you think he would do to make the soil map and report, and to teach the necessary work in geology. Also, what about him personally, and what are the prospects of ^{his} completing the study? I do not know how long it would take. Possibly you have some ideas on this with your field experience in the Park. Any suggestion which you care to make will be much appreciated.

I am sending to you some of our recent publications.

Very sincerely,


Chas. C. Adams, Director.

List of Publications Sent

- 1 Circular 9 - "Guide to the Fossil Exhibits of the New York State Museum".
- 2 Circular 8 - "Some Preliminary Experiments on Oil Recovery Processes".
- 3 Bulletin 290 - "Geology of the Newcomb Quadrangle".

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STATE OF NEW YORK



DELOSS T. SIMPSON,
CHIEF ENGINEER-TREASURER

ALLEGANY STATE PARK
CUBA RESERVATION
LAKE ERIE STATE PARK

CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION
RED HOUSE, N. Y.

November 16, 1932.

Professor F. T. Thwaites,
The University of Wisconsin,
Madison, Wis.

Dear Professor:

We have your letter of November 14th, acknowledging receipt of the Quaker Lake test.

The second well is now down about thirty (30) feet, and has proven very difficult. In order to get a straight hole, the driller has pulled his casing three times. Samples are being kept on this one also, which will be sent to you in due course.

We will be very much interested in your advice as to shooting the first. It has been suggested that we may have put the test on this well at the time of its' lowest flow.

Very truly yours,

R. J. HALLEY.

R. J. Halley
Executive Secretary.

H:M

Nov. 14, 1932

Mr. R. J. Haley, Executive Secretary,
Allegany State Park Commission,
Red House, New York

Dear Mr. Haley:

I wish to thank you for your of the 4th with enclosed log of the Quaker Lake test. I hope to look over the samples at an early date and may then be able to suggest whether or not shooting the well might increase the supply. It is too bad the results were so poor but I always considered it a test and not a sure thing. Let us hope for better luck in the second hole. With regard to shooting I should think that the places where water was struck would be best if it should seem desirable. But I must wait until I have seen the material before making a definite statement.

Very truly yours,

F. T. Thwaites, Geologist in charge of well
records, Wisconsin Geological Survey

Nov. 7, 1932

Mr. O. R. Lindberg,
Chief Ranger,
Allegany State Park Commission,
Red House, New York

Dear Mr. Lindberg:

Yours of Oct. 22 and the samples are at hand and I wish to thank you for both.

It is certainly too bad that the yield of water is so small but you will recall that I always felt that it was in the nature of a wildcat test. I have not yet been able to look at the cuttings. Will not be able to get to that before next week as I have to go into the field for several days the end of the week.

Was much interested in the flow of Twin Springs. Did you allow for the fact that the small can only holds 0.87 gallon? Any later measurements will be greatly appreciated.

I am much pleased to learn that the rebuilding of the wells has been successful.

Will greatly appreciate Hulme's log of the Quaker Lake test. As some of the paper sacks burst in transit and most of their contents was lost I am sending you under separate cover some of our sacks and tags to use for the next batch. I certainly hope that you have better luck although I fear that if the rig is moved only a short distance the results will not be much better.

I am just now finishing the field trip season and after that is done will devote my time to the New York report.

Thanking you again for your cooperation,

Very truly yours,

F. T. Twaites,

Science Hall,

Madison, Wisconsin

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STATE OF NEW YORK



DELOSS T. SIMPSON,
CHIEF ENGINEER-TREASURER

ALLEGANY STATE PARK
CUBA RESERVATION
LAKE ERIE STATE PARK

CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION
RED HOUSE, N. Y.

November 4, 1932.

Professor F. T. Thwaites,
R. F. D. 4,
Madison, Wis.

My dear Professor:

We enclose herewith Mr. Hulme's report on drilling and testing the well at the Science Lake at Quaker Run.

The flow of this well, as shown in the report, we have considered insufficient to supply the system and have moved the drill rig to a point just across the road, and about 200 ft. from the first one. Mr. Hulme is also drilling this well and samples will be saved as on the first one.

We will be very much interested to receive your comment.

Very truly yours,

R. J. HALEY.

R. J. Haley
Executive Secretary.

HM

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ASSISTANT STATE ZOOLOGIST
NOAH T. CLARKE
STATE ARCHEOLOGIST

October 25, 1932.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

Your letter of October 21 is just here and I
am pleased to hear from you.

I am also pleased that you have been able to finish the
illustrations for the glacial book. It seems to me that such a
book should be very welcome indeed.

I will be much interested in those field directions for
photography when you find it convenient to spare a copy.

Yes, it seems to me that a geological study of the local
soils, with a map, is one of the next geological problems that
we should undertake at the School. I wish the study from a geo-
logical and economic, rather than from an agricultural point of
view - as agriculture is dead in that area, so far as we are
concerned.

I did not know that Mayer was ill. It seems strange to be
ill after all that summer of outdoor life. That was indeed bad

October 25, 1932.

luck for both of you.

Evidently Mrs. Thwaites planned that little surprise for you and sent Tom to greet you!

I am much pleased that you found the plan for water analysis worked out satisfactorily. When your Report reaches me I will write to the Saratoga Commission and thank them for the cooperation.

I am pleased to have copies of your letter to Haley of October 21, and to Elmore of October 20.


In the same mail with your letter came one from Haley in which he states:-

"You may be interested in knowing that the well which we contemplated drilling at the time of your visit, was drilled to a depth of 300 ft. After the first 15 ft., drilling was through solid rock. Samples have been kept which we will forward to Professor Thwaites. The capacity was quite disappointing, the test having been made only yesterday by air. This enabled us to ascertain the draw-down at various floats. At 12 gallons per minute, the water level was maintained at 70 ft. This is, of course, insufficient to supply the system and we are moving the drilling rig a short distance away and trying another hole, this time to go not more than 150 ft."

He has probably also written to you about the same subject.

Be sure to inform me if there is anything we can do to assist.

Very sincerely,


Chas. C. Adams,
Director.

STATE OF NEW YORK



CONSERVATION DEPARTMENT
ALLEGANY STATE PARK COMMISSION

RED HOUSE, N. Y.

October 22, 1932.

Dr. F.T.Thwaites,
R. 4
Madison, Wisconsin.

Dear Doctor;

Have delayed writing you until the new well was completed and the flow tested. A depth of 302 feet was reached yesterday and the well tested 12 to 15 gallons per minute. This was somewhat of a disappointment to all concerned. Samples of the borings were collected at intervals of five feet. I am shipping these to you by express tonight, if possible, or Monday. Will also send the log and other information about Monday.

I started my vacation on October 6th so collected the water samples for chemical analysis on the 3rd and shipped them to Saratoga Springs. On that date I also measured the flow of the Twin springs. The total of the three was 15 1/3 gallons per minute.

About fifteen well tops have been rebuilt and tests from them have been all that we had hoped. B-coli appearing in one and later I discovered that a very small amount of chlorine was used. Later, I made OT tests before pumping and found that wells vary greatly in the amount required and have governed myself accordingly.

Will give you more information on these wells, the new one (Numbered Q-26) and the next one to be drilled. We will collect samples of the borings as before for you.

Things are very quiet around the Park. Having a few visitors and will have more of course next week when the hunting season opens.

Expect to take more samples from the rebuilt wells to the laboratory next week and will include information on these in my next letter.

Yours very truly,

ALLEGANY STATE PARK COMMISSION,
R.J.HALEY, EXECUTIVE SECRETARY.

O.R. Lindberg
O.R.Lindberg, Chief Ranger.

Oct. 21, 1932

Dr. C. C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

The enclosed copies of letters will speak for themselves.

The last photographs arrived some time ago and I returned the negatives at once. What prints I will not need for the report I sent to Gordon but have heard nothing from him. Suppose that he is as busy as I have been! I did not return some of the poorest negatives. Where there are exact duplicates I put both in same envelope. You will note the abrupt and marked drop in quality when I changed to Eastman film. They knew nothing of any shortage of Agfa films here and I soon stocked up again.

All checks have now arrived and I can stave off the worst of the well-known Depression for a time!

I have finished the illustrations for the glacial text and put the Allegheny Park report next in priority, if I can get Mrs. Thwaites to finish typing the glacial text. We should get it done before long if the last data comes in soon as I hope it will.

When I looked for the notes on field photography I found that copies are out of stock and the stencils are gone. Must have destroyed them last spring as worn out and then forget that I had done so. This outline will have to be revised for second semester and I will then send you a copy. Will also assemble illustrations for possible publication.

Had a letter from Dr. Lobeck in re a soils man for the school and will have some suggestions to make in a few days.

The old Chevy brought me home safely in less than three days. Mayor was taken violently ill the first day out and that caused more strain on me than all the rest of the 300 miles. Our little boy, Tommy, surprised me by walking out to meet me.

Just now is the peak of the field trip season and we must hurry before snow covers everything. Classes are up to last years strength.

Very truly yours,

Lecturer in Geology

Oct. 21, 1932

Mr. R. J. Haley,
Allegheny State Park,
Red House, New York

Dear Mr. Haley:

I have just received the chemical analyses of the three typical waters from the Park collected by Mr. Lindberg. Can you please thank him for me for collecting and forwarding them?

This information leaves me all fixed to go ahead with the report except that I have heard nothing about the test well above Quaker Lake which we spotted just before I left. Could you please let me know the developments in that respect, and send me the samples if available?

I made home in three days quite easily in spite of my old car. Since then my time has been fully taken up in examining well samples which had accumulated in my absence. Just now I am in the midst of field trips with my classes which must be finished before snow flies too much, at any rate.

Thanking you again for help rendered while in the Park and with regards to others who I knew there,

Very truly yours,

Geologist in charge of well records

P. S. I would also like very much to get the results of the sanitary analyses from the wells we worked on after finishing the Red House Trailer Camp well. Mr. Lindberg gave that one to me while still there.

Mr. Cyrus B. Elmore, Superintendent,
Saratoga Springs Commission,
Saratoga Springs, New York

Dear Sir:

Yours of the 17th and the three analyses of typical Allegany State Park waters are at hand. Both Dr. Adams and I wish to thank you for doing them. Full credit will be given in the report.

I expect that it is the small amount of magnesium sulphate which is present in the water from the flowing well which gave it the reputation as a mineral water. The vegetable growth is iron bacteria. These analyses will greatly help me in completing my report. They will furnish a good basis for interpreting the partial analyses made at the Department of Health which were all that we had before.

Very truly yours,

F. T. Elwell, Geologist in charge of well records,
Wisconsin Geological Survey

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SUPERINTENDENT
OFFICE, 15 SPRING ST.
SARATOGA SPRINGS, N. Y.

SARATOGA SPRINGS COMMISSION

October 17, 1932.

Mr. F. T. Thwaites
R. D. #4
Madison, Wis.

Dear Sir:-

Inclosed find the results of the analyses of the three samples of water received from Allegany State Park on October 10th, 1932.

These waters are very lightly mineralized and can hardly be considered in the class of mineral waters. The results are tabulated in terms of parts per million both in the ionic form and the hypothetical combinations.

It will be noted that in the sample from Mid Twin Spring the Ca and Mg have been computed to Calcium and Magnesium Carbonates instead of the Bicarbonate form as reported in the other two. This has been done because this waters reacts Alkaline to Phenolphthalein indicating the presence of normal carbonates.

We trust that these results will furnish the information desired.

Very truly yours

C. B. Elmore
Superintendent

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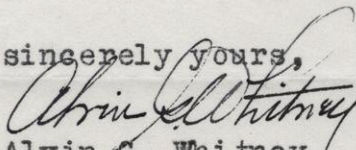
October 14, 1932

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

A check for \$50.00, in payment of your travel expenses during field work for the State Museum during the past season has just been received from the Department Cashier and transmitted to the State Street Branch, First National Bank, Madison, Wisconsin, as you requested.

Very sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC

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ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

OFFICE OF THE DIRECTOR

September 22, 1932

Dr. Frederick T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

Negatives and prints from your summer's exposures in the Allegany Park region have just been completed, and are being sent under separate cover. Our Museum photographer has also furnished the following memorandum for these:

"44 envelopes for negatives.

80 prints, accompanied by corresponding negatives.

2 prints were made from each good or passable negative.

1 print was made from each poor negative, and from the better of duplicates.

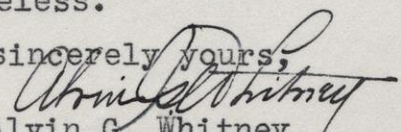
No prints were made from bad negatives.

Where three prints, the third represents a test on another grade of paper."

Please type your field data on the blank Photo File Envelopes; and return to Dr. Adams, - as I shall be absent for several weeks.

Our photographer makes the following comment: that it seemed to him you had used old panchromatic film, as it required 1 minute 20 seconds for development. But he indicates that results were fair, nevertheless.

Very sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC

Sept. 22, 1932

Mr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Mr. Whitney:

Yours of the 19th with enclosed expense account came yesterday and I am returning same enclosed and signed by a notary.

I just had a notice from the bank that the salary check had arrived and had been placed to my credit.

Could you please send the expense check the same way as it saves me some trouble. All our University checks are handled the same way.

Very truly yours,

Lecturer in Geology

THE UNIVERSITY OF THE STATE OF NEW YORK
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ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

OFFICE OF THE DIRECTOR

19 September 1932.

Dr. Frederick T. Thwaites
Dept. of Geology
University of Wisconsin
Madison, Wis.

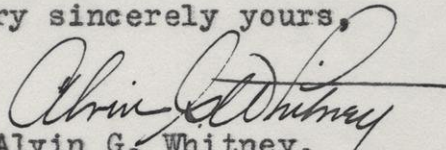
Dear Dr. Thwaites:

I return, enclosed, your travel expense voucher typed and verified, ready for your signatures in duplicate, and affidavit, as indicated.

Your letter of Sept. 15 evidently crossed with mine. I had already sent your check to the bank as requested.

Dr. Adams has just returned from his vacation, so I presume you will hear from him before long as to the salamander papers you mentioned.

Very sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MEB
Enc.

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September 15, 1932

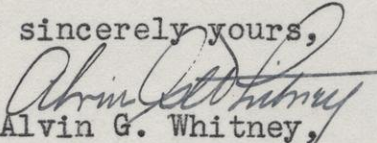
Dr. Frederick T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

Your salary check of \$450.00 for services to the Museum during July and August, has just reached my desk, and I have forwarded it to the State Street Branch, First National Bank, Madison, as you directed.

Did you send us your field expense account? I do not appear to have received it. If more convenient, just send in a single penciled copy, together with your sub-vouchers (receipts) if any, and we will type it, check it for possible disallowances, etc. and return to you for signatures and affidavit.

Very sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC
Enc. 1

Sept. 15, 1932

Mr. Alvin G. Whitney, Assistant Director,
New York Syate Museum,
Albany, New York

Dear Mr. Whitney:

Enclosed please find preliminary copy of my field expense which I would like to have typed in proper form as per your kind offer of Aug. 8. I ~~started~~ to make them out on the regular forms just to see how they worked. If there is anything I have omitted through misunderstanding of the directions please advise and I will supply the information. I cut the total to the \$50.00 by leaving out the last few days and making three cents extra deduction elsewhere. There were no other expenses besides postage but I have no record of that and as you give one set of prints of the photographs we can ~~serget~~ about that I will have one of our notaries here sign the expense vouvhers when completed. You have a record of the insurance policy. The number was A. P. D. 481374 as per letter from Dr. Adams on May 31.

I returned the salary vouchers on August 11 but to date have had no checks. Will appreciate it if these come through soon.

I obtained some separates of the salamander papers and am mailing them to Dr. Adams under separate cover.

Very truly yours,

F. T. Thwaites

Aug. 30, 1932

Mr. A. T. Shorcy, Superintendent,
Allegany State Park,
Red House, New York

Dear Mr. Shorcy:

On leaving the Park I desire to leave this memorandum with you or whoever takes your place later as to some things which I would greatly appreciate having done after I am gone.

I have left jugs with labels for Mr. Lindberg to fill with waters and send express collect to Saratoga for analysis. The samples are to be from:

- (1) middle spring of Twin Springs
- (2) flowing well back of Countrymans trading post
- (3) McIntosh south well

I would like the samples and log of the Quaker Lake well sent to me for examination at SCIENCE HALL, MADISON, WISCONSIN. If you could persuade the Saratoga Springs people to make a fourth analysis of water from that well I feel that it would be a good idea. We certainly do not want to put a mineral water like that at Countrymans into the mains.

I am leaving my cans with which I measured springs. If someone has a chance a few measurements of Twin Springs during the fall would be a welcome addition to our knowledge. I do not measure the leakage through an old outlet of the middle spring every time for I know just about what that stays at, about 0.8 gallon per minute.

Both Dr. Adams and I greatly appreciate the help given me by you and by all others connected with the Park. If there are any questions on which you would like my advice please feel free to write me at the address given above. I am particularly anxious to know how you come out with the well at the lake.

Very truly yours,

S. T. Thwaites

August 29.

Mr. Thwaites .

Test of Red House Trailer well -

Bacteria count - 1

B. Coli group - all negative

Lindberg

PIERREPONT B. NOYES
CHAIRMAN

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COUNSEL

STATE OF NEW YORK



JOHN H. HATCHER
SECRETARY
CYRUS B. ELMORE
SUPERINTENDENT
OFFICE, 15 SPRING ST.
SARATOGA SPRINGS, N.Y.

SARATOGA SPRINGS COMMISSION

August 26, 1932.

Mr. F. T. Thwaites
Allegany School of Natural History
Quaker Bridge
New York

Dear Sir:-

We shall be very glad to
receive the three samples of water
in October, and will be able to take
care of the express charges here.

Very truly yours

A handwritten signature in cursive script, appearing to read "C. B. Elmore".

Superintendent

Quaker Birdge, N. Y.,
Aug. 26, 1932

Dr. L. W. Floger,
Department of Geology,
Lyman Hall,
Syracuse University,
Syracuse, New York

Dear Prof. Floger:

In reply to yours of the 24th which came late last night there is some trouble about getting away from here as under civil service rules we are supposed to be here all the time except on official trips like that to the Cattaraugus quadrangle. However, Dr. Adams says it will be all right to leave by 10 A. M. E. S. T. Saturday and return before noon of Monday. He suggests that we meet at the main entrance to Watkins Glen not later than 4 P. M. Saturday. That is 136 miles from Salamanca and 86 miles from Syracuse. Mr. Mayer, one of the students here, will be with me. I have arranged with another student who is attending the Genetics conference at Ithaca to get rooms there and to bring him back here early Monday. It will be all right, however, if we do not show up there until Sunday night. I certainly greatly appreciate your offer and will enjoy meeting my old roommates again.

Please do not hurry too much to make the appointment.
I cant drive my old Chevy very fast, you will remember.

Sincerely,

CATTARAUGUS COUNTY DEPARTMENT OF HEALTH
BARTLETT MEMORIAL COMMUNITY CENTER
OLEAN N.Y.

August 24, 1932.

Mr. Fredrik T. Thwaites,
Allegany School of Natural History,
Allegany State Park,
Red House, N. Y.

My dear Mr. Thwaites:

Enclosed you will find
a copy of the stream flow data compiled by
Mr. Fuller. Dr. Burroughs informed us you
wished to have a copy.

Very truly yours,

Danna E. Hull

Secretary to: Mr. Fuller.
Sanitary Engineer.

Geology Department

T. C. Hopkins
Burnett Smith
H. N. Eaton
L. W. Ploger
S. P. Poole
O. F. Kerlin

Lyman Hall

Syracuse University

Syracuse, N. Y.

August 24, 1932.

Dr. F.T. Thwaites,
Allegany School of Natural History,
Quaker Bridge, N.Y.

Dear Dr. Thwaites :

I have delayed reply to your recent letter until I could make plans for the week-end more definite

My class meets daily at 11-12 which makes it impossible to get away here much before 12:30 but I think I could probably get to Ithaca by 2:30 with no mishaps. Suppose we plan to meet there at the Hotel Ithaca at 2:30, or before if possible .

I have invited Apfel and Holmes to accompany us and they may accept in which case we may have a little symposium on glaciation in the finger lake country.

It has just occurred to me in glancing at the above that I did not state the day, Saturday. We could cover probably 50 miles or more during the remainder of the afternoon and find a good place to stay overnight, then put in a good day Sunday swinging around into the Syracuse region, and you could get back to Ithaca by bus from Tully at a convenient hour Sunday night. With that plan we could all ride in one car and simplify the whole tour. However if any other plan would suit you better don't hesitate to speak up, as this trip is mainly for your benefit, although I expect to get some new ideas as I did on our reconnaissance in the Cattaraugus quadrangle.

I'm glad you got some good pictures while with me . Some of mine were fairly good also. I'll bring them along for you to see when we meet.

In case you should need to wire me, I'll be at Lyman Hall until 12 o'clock Saturday. Rain or shine then, we will meet as I have outlined above unless you advise me otherwise.

Sincerely yours,

L. W. Ploger

Quaker Bridge, New York,

Aug. 24, 1932

Mr. C. B. Elmore, Superintendent,
Saratoga Springs Commission,
Saratoga Springs, New York

Dear Sir:

In reply to yours of the 9th I have ²made arrangements to have Mr. Oscar Lindberg, Chief Ranger, collect and express to you three samples of water from the Allegany State Park for complete mineral analysis. He will do this sometime early in October. I have labeled the jugs properly. These were found in the warehouse here. I am leaving a copy of this letter with Mr. Lindberg to mail when he sends the samples. I regret that we have to send them collect but Dr. Adams could think of no way for him to pay the express.

~~My~~ address after September 1 will be R. D. 4, Madison, Wisconsin.

Thanking you again for this cooperation,

Very truly yours,

F. T. Thwaites

August 19, 1932

Prof. L. W. Floger,
Geology Department,
Syracuse University,
Syracuse, New York

Dear Prof. Floger:

I think that I could come over to see the Finger Lakes on Saturday, August 27 meeting you at either Ithaca or Watkins Glen. This is about 150 miles from here so probably would not be there until quite late in the afternoon. We would then have next day to look around before you would have to return. If I left here early, however, I could possibly get there by noon. I would plan to stay away two nights and return here early on Monday. Please let me know if this suits you and if not I will be glad of any suggestions.

The photos in the Cattaraugus quadrangle were for the most part excellent. I will send or bring you copies. Not all have been received to date, hence will not send any now. One was underexposed, and you moved in another, otherwise the average was high. I think you will be pleased with them.

Thanking you again both for the fine experience I had with you and for your offer to show me around the Finger Lakes,

Sincerely,

August 19, 1932

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Your letter of the 16th and the films are both at hand and I wish to thank you for the same. Verichrome is not nearly as fast as plenachrome, only a fifth for distant landscapes but I have no doubt will be just as good as the films we had previous to last year. Most of the last photos turned out very well indeed although a few were underexposed, an error I very rarely make. Generally the photographers complain that I overexpose.

With your permission I will turn over to Prof. Ploger the extra prints of the pictures taken in the Cattaraugus quadrangle.

I will also turn over to Dr. Coker, if you desire, some of the pictures which he thought he might use in future announcements of the school.

Progress on the report has been slow but we are getting more data all the time. Work on some of the bad wells has shown definitely that improper construction is at fault in most cases. I was over at Olean yesterday and Mr. Fuller, the county engineer agreed with me that most of this years tests, if not all indicate that rather than subsurface contamination as claimed by Allen. I have never been able to get a look at Allen's full report. They are supposed to have a copy here but nobody knows where. Dr. Atwater stated that he had a copy but Mr. Fuller did not know where it was as the doctor is on his vacation. I found, however, that every ranger in the Park knows more about this report than I do! Possibly they got the information directly from Allen, however.

The use of Twin Springs for the pipe line seems to be definitely off. The latest is to sink a well just above the lake and use that for sole supply for the valley.

This afternoon I am going over to study a proposed water system for the new bathhouse of Red House Lake in company with Messers Shorey and Fuller. We suggest using an existing well instead of the spring now developed.

Mr. Shorey says they have not a single copy of your handbooks on the Park at the Administration building.

Do you wish my notes on the Cattaraugus quadrangle and those taken of field trips? They are on Wisconsin notepaper and I did not have enough of yours and like our notebook better. I have not taken any personal photographs so far so you might like the notes on them.

Very truly yours,

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
ASSISTANT DIRECTOR
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RUDOLF RUEDEMANN
STATE PALEONTOLOGIST
D. H. NEWLAND
STATE GEOLOGIST
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ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

August 16, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,

Allegany School of Natural History,
Allegany State Park,

Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

Your letter of August 13 is just here, also the Thwaites roll film No. 9, 1932; and the cut-films will be Nos. 10-17, 1932. Your directions have been sent to Mr. Stein.

We are so crowded about photographic work that in general we cannot furnish many extra prints, and as we have no way to adjust payments we cannot bother with them.

As to the water samples: What kind of containers will be needed, and what will they cost? Can not fruit jars be used? As to express, they should be sent collect. The Saratoga Commission surely can do that much for the cooperation, as the red tape for other payment from here would be endless - unless the Park Commission is willing to prepay the express.

I am much interested in what you have to say about the springs and wells. Certainly this is of much importance and I am pleased with the way you are going after such facts.

August 16, 1932.

As to copies of your report: It is often convenient, in dealing with men not living at Albany, to have 2 copies of the manuscript of the report.

Yesterday I was able to get 6 rolls of 6 exposures, No. 170, for 2 C Kodak, Eastman, verichrome, and mailed them to you. These will be Thwaites Nos. 18-20, 1932, with the 3 to replace those that you used of your own. I hope that these will be satisfactory.

Very sincerely,


Chas. C. Adams,
Director.

Aug. 13, 1932

Dr. Chas. C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Your two letters of the 10th are at hand.

With regard to films I should think that some of the kind I asked for would be found in some of the photographic supply stores even if out of stock with wholesalers. I could not obtain any in Bradford or Gowanda because they stock only a few sizes. I have not tried Salamanca. I could use Eastman VERICHROME film but it is much slower with filters and besides I do not know the required exposures. The point is that you furnished six rolls and I have used three of my own expecting to have them replaced. In this case I will leave it to you to either send verichrome or else send the three rolls of plenachrome to me at home later. On the whole the first course would seem best and if four rolls are sent I will get you some more pictures before I leave.

Several have asked for extra prints of the group on Jones Hill, No. 12 but as I note that you reserve right to print any of these I did not fill these orders. A boy from Salamanca also insisted on paying me for a print of a picture on Roll. 9. Please inform me what to do about these requests.

This morning I mailed by parcel post, insured, all my negatives Nos. 1 to 24, and a package of cut films. Please inform Mr. Stein that half of the cut films are PANCHROMATIC. These films are numbered in pencil on the sensitized side near to the mark on the edge. I supplied the panchromatics and will keep an equal number of the other films in exchange.

I am in receipt of a letter from Mr. Elmore at Saratoga in which he states that we will have to furnish the containers for samples. Please inform me how to finance this transaction including the EXPRESS after I am gone.

Prof. Floger said that if I came over to the Finger Lakes some Sunday he would take me around. I hope to get over there the last week end of the season.

Will it be all right if I leave here the morning of the 31st.? I am working on my report but as the analyses will not be done until winter cannot send in all of it when I leave here as I had intended.

Next week we intend to do some experimental work on a condemned well

condemned well. By sterilizing, rebuilding the top, and pumping we expect to find out if the contamination is subsurface or down the well. The Park authorities, Dr. Atwater, and Mr. Weagraff, Superintendent of Waterworks at Salamanca expect to cooperate in this work. My feeling is that if we can save an otherwise worthless well this concrete result will be worth vastly more than any amount of theoretical reasoning.

They had a conference yesterday over the pipe line from Twin Springs. The springs are now giving only half the needed amount of water. It will be necessary either to redesign the line so as to supply more water from the lower end or to further deplete the sources of Quaker Run with wells and newly developed springs. Dr. Atwater does not approve the use of spring water without chlorination so it will be necessary to gather all waters to a central treatment station presumably somewhere near the lake here. Some of the Park people are much opposed to this plan. I have tried to keep out of it but if we can get them to cooperate in experimental work on wells I feel that we will have made a marked forward step.

I have now visited practically all the wells and springs in the Park which are of any consequence and are used by the public, besides a number of private supplies, and the Salamanca waterworks. The flow data has proved very valuable in fixing the time of transit of water after rains before reaching springs. To get this it was necessary at times to gauge the springs twice a day so it was impossible to do very much except with Twin Springs. Temperature data is also quite valuable, I hope. I have determined the depth and temperature of the isothermal layer within narrow limits. I also hope to make some estimate of the speed of heat transmission underground. Some of the graphs of this data are now in rough form. I will make these on tracing paper so that you can blueprint them for advance copies if needed. Please inform me how many copies of the report you want typed for I can make several if necessary.

Possibly I have gone into these matters at too great length but the time is growing short now so I wish to be sure of my ground.

Very truly yours,

August 11, 1932

Mr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Mr. Whitney:

I am returning enclosed the two salary vouchers
signed as requested. Of course, this statement is false but I suppose
it is required by statute as it was in Wisconsin until corrected a few
years ago when they got tired of complaints. Please send the checks to
State Street Branch, First National Bank,

Madison, Wisconsin.

I am keeping the expense vouchers until I have used up
the \$50.00 which will be soon. I think it will save time to make out
the accounts here.

Very truly yours,

F. T. Thwaites

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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ALVIN G. WHITNEY
ASSISTANT DIRECTOR
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ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

August 10, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,

Allegheny School of Natural History,
Allegheny State Park,

Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

With regard to the additional films which you
desire, Mr. Stein reports as follows:-

"I am informed by F. E. Colwell & Company that Agfa
Plenachrome films, any size, cannot be supplied by the
factory for five weeks. They are now out of stock. The
Thwaites request for more Plenachrome film cannot there-
fore, be filled".

Kindly advise me as to what other kind will answer your
purpose and we will order them as soon as we can.

Very sincerely,

Chas. C. Adams
Chas. C. Adams,
Director.

*films sent.
extra copies
Kugler letter
departure
report
analysis*

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NEW YORK STATE MUSEUM

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ARCHEOLOGIST

August 10, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,
Allegheny School of Natural History,
Allegheny State Park,
Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

Your letter of August 8, and the copy of the same date to Superintendent Elmore about water analyses, are here.

Your films Numbers 5, 6, 7 and 8, 1932, came safely and have been given to Mr. Stein for attention.

I am much pleased that you got in the field with Ploger and found it interesting and profitable.

I am interested in your remarks about samples taken by the churn drill.

I am pleased to know that the class work is bringing out interesting points on the local glacial deposits.

I am ordering additional films for you.

Very sincerely,

Chas. C. Adams,
Chas. C. Adams,
Director.

PIERREPONT B. NOYES
CHAIRMAN

JEROME D. BARNUM
EDWARD H. BUTLER
CARL R. COMSTOCK, M. D.
FREDERICK H. ECKER
L. WHITINGTON GORHAM, M. D.
MORTON L. SCHWARTZ
SPENCER B. EDDY,
COUNSEL

STATE OF NEW YORK



JOHN H. HATCHER
SECRETARY
CYRUS B. ELMORE
SUPERINTENDENT
OFFICE, 15 SPRING ST.
SARATOGA SPRINGS, N. Y.

SARATOGA SPRINGS COMMISSION

August 9, 1932.

Mr. F. T. Thwaites,
Allegany School of Natural History,
Quaker Bridge, N. Y.

Dear Sir:-

We are very glad to co-operate with your department in making complete mineral analyses of three samples of water. These samples may be in our hand at any time early in October, and I would advise that you ship them about the first. Under these conditions it would be better for you to leave the containers and have the Park Officials collect and ship the samples. We should have at least one gallon of each type of water, and the bottles or containers should be plainly marked.

We are very glad to be of service in this matter.

Very truly yours

A handwritten signature in cursive script, appearing to read "C. B. Elmore".

Superintendent

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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ARCHEOLOGIST

OFFICE OF THE DIRECTOR

August 8, 1932

Mr. F. T. Thwaites
c/o Allegany School of Natural History
Allegany State Park
Quaker Bridge, N. Y.

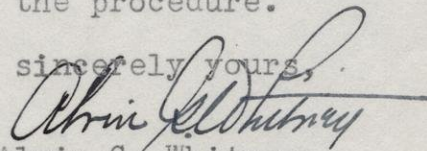
Dear Mr. Thwaites:

I enclose salary vouchers for your signatures, induplicate, to cover July and August, 2 months, at \$225 per month, as arranged with Dr. Adams. No affidavit required for bills for services. Please return these salary vouchers at your earliest convenience.

You were allotted, also, \$50 for field travel expenses. I enclose two sheets of the blank voucher forms for these, (together with plain sheets, for our office file copy). Make your travel bill continuous through the two months. If you prefer, you may send me a single pencil copy of your account, to be typed here and returned to you for signatures and affidavit. I enclose receipt slips for sub-vouchers, if you still need any.

I believe Dr. Adams gave you a copy of the latest State rules on travel expense accounts, and doubtless cleared up any questions. If not, please let me know. Also, if not clear just how to compile the account, ask Mr. Gordon, who is familiar with the procedure.

Very sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC
Enc.

Aug. 8, 1932

Dr. C. G. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Your letters of August 1 and 3 are at hand. I am greatly pleased that you have secured a chance to get some water analyses made. Enclosed is copy of letter to Mr. Elmore at Saratoga Springs.

The report on Saratoga Springs also arrived and I wish to thank you for it. In it I note that the idea that no accurate determination of geology can be made from ordinary churn drill holes still prevails in this state. I wish to impress upon you that such is not the case when samples are carefully and honestly taken direct from the bailer or sand pump. I have examined samples from over 40 miles of drilling and so am in a position to be confident of the above statement.

Thank you also for the photographs. I mailed by parcel post, insured, four (4) more rolls on Saturday. I discovered that I have a bad light leak in the bellows of my Kodak. Evidently the bellows has come loose from the body of the camera. I will correct this as soon as possible but it affected on the tops or left sides of pictures.

I spent two days last week with Prof. Floger in the Catteraugus quadrangle. I found this most interesting and valuable to me and was able to make some concrete suggestions for the interpretations of some features. These were based on experience gained in the west.

The work on the Allegheny terraces with my class is progressing nicely. I think we have good evidence of two distinct stages of glaciation in the adjacent region as well as a distinct suggestion that ice never occupied both sides of the reentrant angle at once. Of course, we can only scratch the surface of the Pleistocene problems but can I feel give the western slant to suggestions for further study. Unfortunately I have never seen the reports of Tester and his student. Maybe I am simply duplicating what they thought but I hardly think it.

I will mail back the negatives as soon as I can type labels on the envelopes. Dr. Coker wants some prints of some but will let you know later. Please send me four (4) more rolls of Agfa FLENACHROM size M6 (2 7/8 x 4 7/8)

Very truly yours,

Aug. 8, 32

Mr. C. B. Elmore, Superintendent,
Saratoga Springs Commission,
Saratoga Springs, New York

Dear Sir:

I have received a letter from Dr. C. C. Adams, Director of the State Museum at Albany that you are willing to have your chemist, Mr. Ant make some water analyses in connection with my study of the water resources of Allegany State Park.

As I understand it Mr. Ant will be unable to work on these before October. I have to leave here at the end of this month so would like to make definite arrangements to settle the matter of when and how to ship the samples.

The analyses I desire are mineral analyses similar to those made by Mr. Ant of the Saratoga waters. We have lots of bacterial analyses as well as determinations of "hardness" and "alkalinity." What I need is type analyses of the spring, shallow well, and deep well waters. This makes an absolute minimum of three analyses.

Would it be possible for me to collect the samples and ship them before I leave:

Or would it be better to leave containers here and have the Park official collect and ship the samples when you are ready for them?

Shall I furnish the containers or have you some which you could express to me before I leave?

Both Dr. Admas and I greatly appreciate your cooperation.

Very truly yours,

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
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ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

August 3, 1932.

OFFICE OF THE DIRECTOR

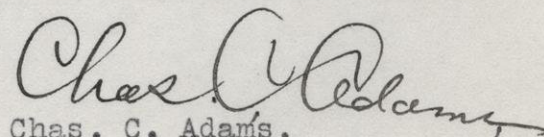
Mr. Frederick T. Thwaites,
Allegany School of Natural History,
Allegany State Park,
Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

I am sending on to you the films and two glossy prints from each, with envelopes, of your Thwaites 1-4, 1932. Please number these consecutively with full data on the envelopes. Mr. Saunders can give you the details about these records. We like them as full as possible. Please return the films and envelopes as soon as convenient.

In case you wish a few extra prints of any number, please send on the requests with the numbers. This is the best method of reference to the films.

Very sincerely,


Chas. C. Adams,
Director.

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
ASSISTANT DIRECTOR
AND SECRETARY

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STATE PALEONTOLOGIST
D. H. NEWLAND
STATE GEOLOGIST
R. D. GLASGOW
STATE ENTOMOLOGIST
H. D. HOUSE
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C. A. HARTNAGEL
ASSISTANT STATE GEOLOGIST
WINIFRED GOLDRING
ASSOCIATE PALEONTOLOGIST
K. F. CHAMBERLAIN
ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST
ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

August 1, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,
Allegany School of Natural History,
Allegany State Park,
Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

I have just received word from Superintendent
of the
Cyrus B. Elmore, State Commission in charge of Saratoga Springs,
and he states that they will cooperate on the analyses of water
samples. This has been arranged by the Chairman of the Commission,
Honorable Pierrepont B. Noyes, who is also a member of the State
Museum Council.

Mr. Elmore states, in the copy of the enclosed letter of July
30, 1932, that their Chemist, Mr. Herbert Ant, is too busy during
the summer for such work, but will be able to make the analyses
after September. I believe now that the next step will be to make
such arrangements as you can xxxx with the Park officials to collect
and ship these samples to Saratoga. Probably the Saratoga officials
will be able to express the receptacles to the Park for the samples.
I would suggest that you communicate directly with Superintendent
Elmore and Mr. Ant, and preserve for me carbon copies of the

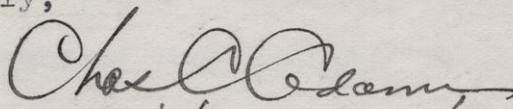
correspondence. It is possible that after the summer rush season Mr. Ant will be able to analyze not simply the minimum number of samples, but more of them, and thus give you a good estimate of the local conditions.

I will write to Mr. Elmore and inform him that I am asking you to write directly to him about the samples.

I am pleased with this prospect.

I am sending you a copy of the Report of the Saratoga Springs Commission to the Legislature (Legislative Document 1930, No.7).

Very sincerely,

A handwritten signature in cursive script, appearing to read "Chas. C. Adams".

Chas. C. Adams,
Director.

Copy of Elmore
letter enclosed

STATE OF NEW YORK
SARATOGA SPRINGS COMMISSION

COPY
For Mr. Thwaites

July 30th, 1932.

Hon. Charles C. Adams, Director,
New York State Museum,
State Education Department,
Albany, N. Y.

Dear Sir:-

Mr. Noyes has forwarded me your letter of the 25th, with the request that we co-operate with your department, which we will be happy to do. Our chemist, Mr. Ant, is completely occupied with the operation of the bath houses during the Summer and we do little or no chemical work during that period. We would be glad to undertake the analyses you mention at any time after the last of September. Samples for these analyses should be collected at about that time. Mr. Ant informs me that these analyses would probably take from two to three weeks each if the ground waters are of an ordinary ground water type.

I will be very glad to hear from you as to the suitability of your arrangements to this purpose.

Very truly yours,

/s/ C. B. ELMORE

Superintendent



THIS SIDE OF CARD IS FOR ADDRESS.

Professor L. T. Thwaites,
School of Natural Science,
Allegheny Park,
Quaker Bridge,
N. Y.

Octo. 22. P.

Dear Professor Thwaites: Aug. 1, 1932

I have your reply to
my note, and shall be glad to meet
you at the Little Valley Post Office
Thursday morning at 10 o'clock
E.S.T.

Sincerely yours

J. W. Rogers

July 30, 1932

Professor L. W. Floger,
General Delivery,
Otto, New York

Dear Prof. Floger:

In reply to yours of the 29th I will be glad to
come over to Little Valley for Thursday and Friday of this coming week.
Please let me know just where to meet you. I can get over about 9 in
in the morning. Thanking you for the invitation,

Very truly yours,

F. T. Thwaites

LYMAN HALL

GEOLOGY DEPARTMENT

SYRACUSE UNIVERSITY

SYRACUSE, NEW YORK

Otto, N.Y.
July 29, 1932.

Professor F.B.Thwaites,
Allegany Park School of Nat.Sci.

Dear Professor Thwaites :

Through Dr.Adams of the State Museum I learn that you are connected with the Allegeny Park School of Natural Science, and that you are working on a glaciology textbook. If you have not already seen them I should like to show you some of the more unusual (to me) glacial features in this Cattaraugus quadrangle on which I am working.

I shall have to return to Syracuse for the second session of the summer school about the middle of August. Would you care to spend two days in the field with me in this quadrangle about the latter part of next week ? If so, let us meet at Little Valley at 8 o'clock some morning the latter part of next week, (using E.S.T) Address me at Otto, N.Y.

So far as I am aware the features which I have been studying have not heretofore been described from the plateau section of New York State, and if you have not seen them you will enjoy them.

Sincerely yours,

L.W. Ploger

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

July 25, 1932.

OFFICE OF THE DIRECTOR

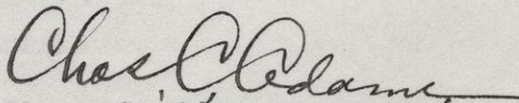
Mr. Frederick T. Thwaites,
Allegany School of Natural History,
Allegany State Park,
Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

Your letter of July 22 is just here, also your 4 films,- Thwaites Numbers 1-4, 1932. Two glossy prints of each will be sent to you as soon as possible - one for your own use, and one for the manuscript of your report.

I have taken up the question of water analysis and will report to you as soon as possible. I am very glad that you talked with Atwater, Ryan, Shorey and Simpson, and I am pleased that you have taken a cautious attitude with them - later all your results will be available to them. I am much pleased that Dr. Atwater takes such a favorable attitude.

Very sincerely,


Chas. C. Adams,
Director.

July 22, 1932

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Yours of July 21 is at hand.

With regard to analyses I feel that to make a complete report we really ought to have reasonably complete analyses of water from a spring, a shallow well, and a deep well. These analyses should determine calcium, magnesium, iron, alumina, silica, sodium, potassium (the latter because of the forest environment which may show something important), carbonate, sulphate, and chloride. We already have lots of partial analyses which show ammonia, nitrate, nitrite, chloride, hardness, alkalinity, etc. but unless we have a few more complete determinations inferences on chemical composition are hard to reach. I think that analyses such as I have outlined will cost about \$25.00 each at a commercial laboratory. Will be glad to learn what you can do.

If Dr. Atwater mentions the matter again, I will tell him what you said. He has been very helpful in getting in touch with Allen and in furnishing a man to help on the pumped wells and some dye to use in contamination tests. I have done nothing about the latter as yet. I fear the tests of temperature on pumped wells tell little except about the depth at which water stands. With power pumped wells, however, the data is probably satisfactory.

I have been getting some interesting results in gauging the Twin Springs particularly since the recent rain. They plan on piping this water to a tank where it will be chlorinated. The treated surplus will return to the Run where it is a menace to fish etc. I may have an alternative to suggest. The results of correlating the analyses with geology are very interesting but will still involve condemning several wells. I found, however, that many "unsafe" tests were made on new wells or wells which had recently had the pump removed. Such tests always show B. Coli and mean nothing as to the permanent condition of the well. Many wells seemed to show bad water in 1930 which did not before or after. I wonder if they lowered the pumps? So far I have found no record of such jobs but am trying to find out. I had a talk with Messrs Ryan, Shorey, and Simpson the other day. I tried not to tell them much except that I did not feel that all wells are "unsafe", and that anything I might say was preliminary and "subject to revision" when I learn more about the region. I hope to have my report completed on Aug. 31.

July 22, 1932

Dr. Robert E. Coker, Director,
Allegany School of Natural History,
Quaker Bridge, N. Y.

Dear Dr. Coker:

Although the main conclusions of my work on ground waters in Allegany State Park ^{are} to remain confidential until published I feel that it is desirable in the interests of those working here to call your attention to two dangerous conditons which exist in the water supply of the camp.

Of these the first and by far the most serious is the fact that there is no cover on the top of the well. This morning I was able to lower a large weight to the bottom. This should be corrected before some mouse or other animal falls into the well.

The second is the fact that the cover of the wooden tank is very far from tight. Although I could get no evidence that it is used as a bat roost there is no reason to suppose that it may be so used either now or at any time. Birds and animals of various kinds must also visit this roof. I suggest covering with roofing paper.

I feel strongly ^{are} that until these conditions are corrected no analysis which shows B. Coli in the water means anything with regard to human contamination.

Very truly yours,

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

July 21, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,

Allegany School of Natural History,
Allegany State Park,

Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

Your letter of July 20 is just here and I am pleased to know that you have all of Allen's water analyses and have started to interpret them geologically.

As they are not able to make the analyses at Olean, I will inquire about having this done elsewhere. How many samples do you wish to have examined - for iron and other minerals? Can you give me more precise information? What size samples will be needed for this?

I am very glad to have men in the State Museum cooperate with others, but our experience shows that it is best to consider the results of our studies as confidential, until they are published by the State Museum or released from this office. I prefer to transmit any report to the Allegany Park Commission directly from this office. I have no doubt but that you are familiar with this

Mr. Frederick T. Thwaites

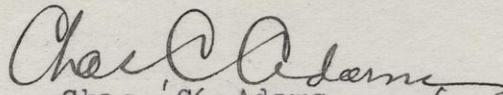
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July 21, 1932.

common procedure in public departments.

I will be pleased to follow up plans for these analyses as rapidly as possible.

Very sincerely,


Chas. C. Adams,

Director.

July 20, 1932

Dr. C. C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Since writing you I have secured all of Allens water analyses which he has made up in a large book. I am now copying those which I think are important for my study. I will then classify the information on a geological basis and proceed to draw my interpretations. However, there are still some points on which more information is needed. They are not equipped to make chemical tests at Olean so if you can arrange it I would like to send in a few samples for iron and other determinations.

When Dr. Coker and I visited Dr. Atwater he made a request that my report be first sent to him for transmission to the Park authorities. I promised to take this up with you.

I am going over to see the new superintendent this afternoon.

Thank you for the copy of the Annual Report.

Very truly yours,

A. T. Thwaites

July 20, 1932

Mr. Irving J. Reimann, Acting Curator,
Buffalo Museum of Science,
Humboldt Park,

Buffalo, New York

Dear Mr. Reimann:

In reply to yours of yesterday the mineral arrived about the time we got here. I unpacked them and put them in the case in the geology laboratory. When the students arrived I discovered that I would not have to give elementary geology so that I have had no use for the specimens thus far. The conditions in the Outdoor Museum are such that we cannot exhibit any small specimens for there are no cases to prevent theft. Therefore, I confined my exhibits to large specimens and did not use any which you sent.

I am sure, however, that the specimens you sent will prove valuable to my successor when normal conditions return and wish to thank you for sending them.

Very truly yours,

F. T. Thwaites

BUFFALO MUSEUM OF SCIENCE
HUMBOLDT PARK
BUFFALO, NEW YORK

DIVISION OF
GEOLOGY AND PALEONTOLOGY



July 19, 1932.

Frederick T. Thwaites,
Field Geologist,
Allegheny School of Natural History,
Allegheny State Park, N.Y.

My Dear Mr. Thwaites:-

Some time ago I gave Mr. Waddell some minerals for your Museum or for class work. They were specimens with no data, and I assumed that they would be satisfactory for your purposes. Will you let me know if they were all right? If there are any other fairly common minerals which I can send, I'll be glad to do so.

Sincerely yours,

Irving J. Reimann
Acting Curator.

IJR/MVT

Quaker Bridge, N. Y.,
July 11, 1932

Dr. Chas C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

In reply to yours of the 6th the paper and pencils came
and I wish to thank you for remembering them.

Owing to the start of the school and getting the Outdoor
Museum fixed I have not been able to do all I wished to on the water
problem. However, I got quite a few temperatures, gauged one of the
big springs, and obtained total depths of all ^{state} wells in the Park.
I expect to go to Olean some time this week with Dr. Coker. I also
intend to run a test on the well here and either run tests or see if teachers
have run them on the new wells at the administration building. In short,
I think that I have the problem well in mind ready to start intensive work.

Very truly yours,

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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ALVIN G. WHITNEY
ASSISTANT DIRECTOR
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ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST
ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

July 6, 1932.

OFFICE OF THE DIRECTOR

Mr. Frederick T. Thwaites,
Allegany School of Natural History,
Allegany State Park,
Quaker Bridge, N. Y.

Dear Mr. Thwaites:-

I have sent in Gordon's care, a package of
supplies which contains for you the following:-

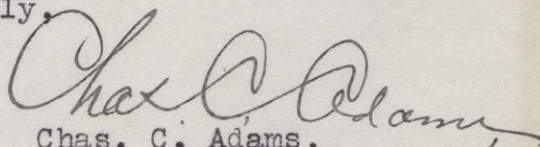
1. Manuscript and carbon paper.
2. Pencils.

I was much pleased to talk over your work, and to have
you meet Brewer.

I am sure that Doctor Coker will be pleased to visit the health
laboratory at Olean with you, where you may secure some information.

I will inquire of the State Health Department about water
analysis and report to you later.

Very sincerely,


Chas. C. Adams,
Director.

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
ASSISTANT DIRECTOR
AND SECRETARY

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
NEW YORK STATE MUSEUM
ALBANY, N. Y.

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ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

OFFICE OF THE DIRECTOR

May 31, 1932.

USE OF PERSONAL AUTOMOBILE AND PHOTOGRAPHIC SUPPLIES

Professor Frederick T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Professor Thwaites:-

Your letter of May 27 is here with your automobile insurance policy No. A.P.D. 481374, which has been recorded, and you are hereby authorized to use your personal automobile for official work in the Park vicinity. Your policy is enclosed.

I believe that it will be wise to bring both cameras, and I am ordering the following photographic supplies: 6 rolls 6 exposures 2 C Agfa plenachrome films; 2 dozen P.C. size Commercial Ortho films.

We can arrange for others when you get the lay of the land.

I will probably be at Salamanca the night of June 30, on my way to the School.

I expect that we will have a very interesting season's work.

Very sincerely,

Chas C Adams
Chas. C. Adams, Director.

Policy enclosed

May 28, 1932

Miss Dorothy Schneider,
Geology Department,
University of Akron,
Akron, Ohio

Dear Madam:

In reply to yours of the 27th I really know little of the Allegany School of Natural History as I have never been there. However, I will try to answer your questions.

1. Credits obtained at the School are recognized at the University of Buffalo and would therefore be accepted from there in other institutions. The School itself is not on the list of schools here. Dr. Coker wrote me on March 1 "We have had no trouble as yet as to credit for the regular courses in geology, botany or zoology, so far as I know."

2. I presume the grade of work in Course 2 will be arranged to suit conditions existing at the time for the number of students in such work will unquestionably be very small.

3. As I know little at first hand of the Park region I cannot say just what advanced problems are possible. I presume, however, that problems in stratigraphy, paleontology, oil geology, glacial geology, and underground waters are available for study. I am to work on the problem of water supplies in the Park area and write a report on the same before leaving.

Very truly yours,

F. T. Thwaites, Lecturer in Geology

THE UNIVERSITY OF AKRON
AKRON, OHIO

May 27, 1932

Mr. Fredrick J. Shwaite
University of Wisconsin
Madison, Wisconsin

Dear sir: —

Concerning the Geology courses to be offered at the Allegheny School of Natural History this summer:

1. Are the credits received recognized by, and transferable to, other schools, such as the University of Wisconsin?
2. Is the work in course 2 more advanced than that in the usual basic Geology course, such as is offered at the University of Akron (4 hours per semester, two semesters)?
3. What type of work is offered beyond course 2?

I will appreciate any information which you may offer.

Very truly yours,
Dwight Schneider
Geol. Dept.

May 27, 1932

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Reply to yours of the 20th was delayed while I had the endorsement of my insurance policy changed. The endorsed policy is enclosed as per instructions.

I do not think that I will require much equipment but as I do not know just what the nature of the work will require I cannot be sure. I have my own Brunton compass and will bring a Paulin aneroid which belongs to the University. I will patch up my present knapsack to do for another season. I will also bring a hammer and field glasses.

With regard to photography I have two cameras. The one I use most of the time, and the only one suitable for work on foot is an Eastman Special Kodak, 2 1/2 size. I have a tripod for this camera. I also have an old Pramo which uses postcard size cut film with tripod for same. This is a long focus instrument useful for distant views but is good for close-ups since it can be focused with the ground glass. It is too heavy, however, to use far from a car and loading of film holders is often bothersome. I have no change bag so must do this after dark. I can bring both cameras if you think best. My full set of filters fits both cameras. I also have a lens hood and exposure meter.

For the Kodak I prefer Agfa plenachrome film for landscapes but for views in the woods where sun and shade are mingled the old Eastman film is better although it renders colors very poorly. I do not know what film is best for the other camera. Eastman panchromatic is touchy and Agfa panchromatic is too soft for distant landscapes. I have had good results with Agfa commercial ortho film in rendering colors but it is very slow. You can now get Agfa plenachrome in cut film but am under the impression that is not a clear cut as the roll film having been toned down for portrait use. I think that I will use not less than six (6) rolls of six exposures each with the Kodak, in fact twelve (12) rolls would be my preference. If I bring the big camera it will use only a dozen or two cut films. I suppose that you do the developing at the Museum. I also suppose that there would be no objection to taking personal photographs on Sundays and holidays. I have a collection of over 600 negatives of my own and would naturally like to add to it if allowed.

I plan to leave here so as to arrive at the park the evening of June 30 or early in the morning of July 1.

Sincerely,

Lecturer in Geology

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
NEW YORK STATE MUSEUM
ALBANY, N. Y.

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ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

May 20, 1932.

OFFICE OF THE DIRECTOR

SUMMER WORK AT THE ALLEGANY STATE PARK, JULY AND AUGUST, 1932

Professor Frederick T. Thwaites,
Department of Geology,
University of Wisconsin,
Madison, Wisconsin

Dear Professor Thwaites:-

I have just received Civil Service authorization for your appointment for work during July and August 1932, at the Allegany State Park, at the rate of \$225.00 per month or a total of \$450.00. In addition to this an allotment of \$50.00 is made for the official use of your personal automobile for the field work in the Park region. I enclose directions for the use of this car and about the insurance required.

I will be at the School July 1, to talk over your plans. Please inform me at once about any equipment and supplies needed for your work. What kind of a field camera do you have; how many, and what kind of photographic supplies will you need?

We furnish field note books.

I anticipate an excellent field season and I will be pleased to meet you at the School.

Directions enclosed.

Very sincerely,

Chas. C. Adams
Chas. C. Adams, Director



BUFFALO SOCIETY OF NATURAL SCIENCES
BUFFALO, NEW YORK
CHAUNCEY J. HAMLIN, PRESIDENT

Allegany School of Natural History

Allegany State Park
Quaker Bridge, New York

ROBERT E. COKER, DIRECTOR
ADDRESS: JULY--AUGUST, QUAKER BRIDGE, N.Y.
SEPTEMBER--JUNE, CHAPEL HILL, N.C.

AFFILIATED WITH THE UNIVERSITY OF BUFFALO



NEW YORK STATE MUSEUM
CHAS. C. ADAMS
DIRECTOR

March 1, 1932.

Mr. F. T. Thwaites,
University of Wisconsin,
Madison, Wis.

Dear Mr. Thwaites:

I am glad to have your letter of February 24. I can appreciate the difficulties of travel and of life in camp with a young baby. In case you should find reason to change plans as to your family, I may say that there could be reserved for you a closed cabin in the circle of staff cabins, which can readily be warmed by an open fireplace.

We have had no trouble as yet as to credit for the regular courses in geology, botany or zoology, *so far as I know,*

Sincerely yours,

R. E. Coker.

Director.

REC-J

Feb. 24, 1932

Dr. Robert E. Coker,
Box 950,
Chapel Hill, North Carolina

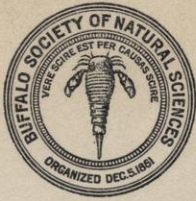
Dear Dr. Coker:

In reply to yours of the 19th I had been meaning to write and thank you for the leaflets you sent me. I will soon place some of these where I think that students may be interested. In our department I fear we do not have many school teachers and they are the ones who would be most interested. I will send some of the Announcements to my friends in the State Teachers Colleges and possibly in the Botany and Geography Departments here. I will also ask about getting credit here for the courses at the Park.

I have a family but think that I will have to come alone for our little boy will then be just short of a year old and his mother thinks that taking care of him in camp would be rather difficult. I am afraid that they will have to stay here. I will drive down in my old Chevy which has seen a lot of grief in the course of field work but is still in good mechanical condition. I take it that about all I will have to bring besides personal equipment is a copy of the official text book.

With best regards,

Lecturer in Geology



BUFFALO SOCIETY OF NATURAL SCIENCES
BUFFALO, NEW YORK
CHAUNCEY J. HAMLIN, PRESIDENT

Allegany School of Natural History

Allegany State Park
Quaker Bridge, New York

ROBERT E. COKER, DIRECTOR
ADDRESS: JULY--AUGUST, QUAKER BRIDGE, N.Y.
SEPTEMBER--JUNE, CHAPEL HILL, N.C.

AFFILIATED WITH THE UNIVERSITY OF BUFFALO



NEW YORK STATE MUSEUM
CHAS. C. ADAMS
DIRECTOR

February 19, 1932.

Box 950

Mr. Frederick T. Thwaites,
Department of Geology,
University of Wisconsin,
Madison, Wisconsin.

Dear Mr. Thwaites:

I am very glad that you are to teach the Geology in the School next summer, and look forward to meeting you July 1 and to a pleasant association during the summer. I am sure you will find the conditions of life and work in the School very pleasant.

We sent you a number of copies of the Announcement recently, and will be glad to send others to persons that you think might be interested in attending. Several of the inquiries recently have related to Geology, although they happened to be such as I could answer. However, you might have some questions directed to you by Miss Elisabeth Tautges of Carleton College. I suggested to her that she might write you if she needed further information than that which I could supply.

We need not expect a large enrolment in these times, although the preliminary correspondence just now is surprisingly lively. Is it possible that any students from Wisconsin would be coming?

May I ask if you have a family?

With best wishes and kind regards, I am,

Sincerely yours,

R. E. Coker

Jan. 7, 1932

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Your telegram and letter of the 4th arrived and I wish to thank you for the offer. Unless something unforeseen happens I will be at the Park on July 1 to meet you.

Thank you for the list of publications which you are going to send.

There will be a number of things to find out about before I start. As far as I think of now these are all about the personal car. Where do I begin charging expenses, here, at the State line, or at the Park? Will it be necessary to get a New York drivers license when I have one for this state? My car will be insured and is used to rough roads. I presume that you will supply maps and will see about making any chemical or bacteriological tests of waters if such are needed. Here we get them done free at the State Board of Health.

I mailed you some of my papers including my report on northern Illinois. I was in error when I said that I started underground water studies in 1912. As a matter of fact I worked on one of Dr. Slichter's parties in the summer of 1904 making well tests etc.

If I think of anything else I will write again,

Very truly yours,

Lecturer in Geology
Geologist in charge of well records

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT
NEW YORK STATE MUSEUM
ALBANY, N. Y.

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
ASSISTANT DIRECTOR
AND SECRETARY

RUDOLF RUEDEMANN
STATE PALEONTOLOGIST
D. H. NEWLAND
STATE GEOLOGIST
R. D. GLASGOW
STATE ENTOMOLOGIST
H. D. HOUSE
STATE BOTANIST
C. A. HARTNAGEL
ASSISTANT STATE GEOLOGIST
WINIFRED GOLDRING
ASSOCIATE PALEONTOLOGIST
K. F. CHAMBERLAIN
ASSISTANT STATE
ENTOMOLOGIST
ELSIE G. WHITNEY
ASSISTANT STATE BOTANIST

ZOOLOGIST
NOAH T. CLARKE
ARCHEOLOGIST

SPECIAL DELIVERY

January 4, 1932.

OFFICE OF THE DIRECTOR

Professor Frederick T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Professor Thwaites:-

Your telegram of December 19, and letter of December 20, came in due time, and I am pleased to know of your willingness to make the water resource survey of the Allegany State Park and to give the geology work in the Allegany School of Natural History. I am therefore making the offer of the work and its acceptance as indicated in my telegram just sent as follows:

"Your telegram and letter received Stop Pleased to have you work at the Allegany Park this summer as proposed Stop Letter follows."

We have yet to make the final arrangements with the Civil Service, but that is a routine matter that will be attended to later.

I will be at the Park July 1, to talk over plans with you.

I am pleased to know that you have been specially interested in such water resource studies, and I will be pleased to have copies of any papers that you have published on this subject.

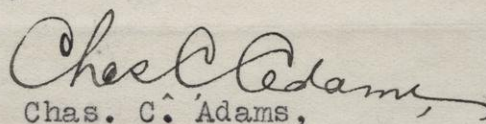
January 4, 1932.

We are printing a new list of our available geological publications. This will be sent to you when printed.

I will soon send you copies of the Announcement for the 1932 session of the School.

I will be pleased to hear from you about any questions that may arise.

Very sincerely,


Chas. C. Adams,

Director.

CLASS OF SERVICE

This is a full-rate Telegram or Cablegram unless its deferred character is indicated by a suitable sign above or preceding the address.

WESTERN UNION

NEWCOMB CARLTON, PRESIDENT

J. C. WILLEVER, FIRST VICE-PRESIDENT

SIGNS

DL = Day Letter

NM = Night Message

NL = Night Letter

LCO = Deferred Cable

NLT = Cable Night Letter

WLT = Week-End Letter

The filing time as shown in the date line on full-rate telegrams and day letters, and the time of receipt at destination as shown on all messages, is STANDARD TIME.
Received at 650 State Street, Madison, Wis. Telephone Bad. 2385

TJ16 22=C ALBANY NY JAN 4 1004A

PROF FREDERICK T THWAITES=

DEPT OF GEOLOGY UNIV OF WISCONSIN=

YOUR TELEGRAM AND LETTER RECEIVED STOP PLEASED TO HAVE
 YOU WORK AT THE ALLEGHANY PARK THIS SUMMER AS PROPOSED
 STOP LETTER FOLLOWS=

CHAS C ADAMS DIRECTOR.

931A.

TELEPHONE NO.

PHONE TO

MESSAGE DELIVERED

TO BE

ATTEMPT

TO DELIVER

WESTERN UNION GIFT ORDERS SOLVE THE PERPLEXING QUESTION OF WHAT TO GIVE

Dec. 20, 1931

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Your special delivery letter of the 18th arrived yesterday afternoon and I at once telegraphed as follows: "Would be pleased to accept position if offered letter follows."

I am sure that I would be able to make the study desired as my experience with underground water problems dates from 1924. I have done work for a number of firms and drillers especially Gray-Milaeger Drilling Co., Milwaukee, Jos. Egorer, Milwaukee, Chicago and Northwestern Railway Co., not to mention many others in Wisconsin and northern Illinois. Most of the results of this work are as yet unpublished by the Wisconsin Geological Survey but the Illinois State Geological Survey published Report of Investigations No. 13 by me. This information will, I think, make clear the experience I have had.

Can I please secure a list of the New York State Museum publications on geology. In checking up bibliographies I find that our library is short many of these reports and that my personal collection is likewise deficient.

Hoping that you decide to offer me the position for the summer,

Very truly yours,

F. T. Thwaites, Lecturer in Geology Univ. of Wis.
Geologist in charge of well records, Wis.
Geological Survey

THE UNIVERSITY OF THE STATE OF NEW YORK

THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

CHARLES C. ADAMS

DIRECTOR

ALVIN G. WHITNEY

ASSISTANT DIRECTOR
AND SECRETARY

SPECIAL DELIVERY

December 18, 1931.

OFFICE OF THE DIRECTOR

RUDOLF RUEDEMANN

STATE PALEONTOLOGIST

D. H. NEWLAND

STATE GEOLOGIST

R. D. GLASGOW

STATE ENTOMOLOGIST

H. D. HOUSE

STATE BOTANIST

C. A. HARTNAGEL

ASSISTANT STATE GEOLOGIST

WINIFRED GOLDRING

ASSOCIATE PALEONTOLOGIST

K. F. CHAMBERLAIN

ASSISTANT STATE

ENTOMOLOGIST

ELSIE G. WHITNEY

ASSISTANT STATE BOTANIST

ZOOLOGIST

NOAH T. CLARKE

ARCHEOLOGIST

Professor Frederick T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Professor Thwaites:-

You will recall that I wrote you a few years ago, at Dr. Lobeck's suggestion, about glacial work in Western New York. At present I am inquiring about someone to make a local study of the ^{and} surface ground water of the Allegany State Park, and [^] teach in the Allegany School of Natural History during July and August 1932. The teaching work involves not to exceed 2 days per week from July 5 to August 24, and the remainder of the time is devoted to the local study of the water supplies. This is a 65,000 acre Park devoted to camping, and water supplies will soon become a very serious problem.

For the months of July and August the salary is \$225.00 per month, with an allowance for the expense of the use of a personal automobile at the rate of 6¢ per mile. The automobile must be insured. The payment of \$450.00 is to cover also the preparation of a report for publication.

would be pleased to accept position if offered
sister follows

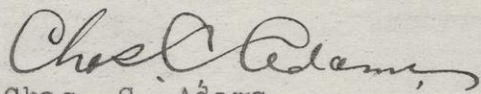
December 18, 1931.

This is not an offer, but if you are interested I would be pleased to hear from you at once by telegram, and I will give you a final decision by telegram, as the Announcement is ready for printing, and I wish to include the name of the geologist if possible. Further details can be arranged later if the general features are acceptable.

The School has been very successful, has an excellent equipment and an able staff. Doctor Coker is a very able man and the atmosphere of the School is excellent.

I enclose the Announcement for 1931 which describes the teaching work. Traveling expenses are only allowed at the School, where board and lodging are furnished.

Very sincerely,


Chas. C. Adams,

Director.

Enclosure - Announcement,
1931



**Recreational Opportunities
for Campers
at the Camp of the
Buffalo Society of Natural Sciences
Allegany State Park
July 1 - August 24, 1932**

45 75 36 70
RH 45
36 73
July 30
June 30

THINGS TO DO AT CAMP

Swimming—The artificial lake provides bathing. A life guard is in attendance.

Nature Study Features

The School Museum is an open-air museum with current local collections of animals, plants, rocks, and fossils.

The Indian Garden is a woodland garden of plants used by the Seneca Indians for food or clothing or for medicinal or ceremonial value.

The Water Garden is a garden of wild aquatic plants at one end of the lake.

The Fernery, on the shore of the lake, is a collection of all the ferns and fern allies native to Cattaraugus County, New York, with a few brought in from other localities to

make the several natural groups more comprehensive.

Games—Facilities for horse-shoes, ping pong, and other games are available on the grounds.

Field Trips—Weekly field trips conducted by Staff members of the Alleghany School of Natural History are especially arranged for the campers. Details may be obtained from the Resident Camp Manager.

Camp Fires—Occasional camp fires are planned.

THINGS TO DO IN THE PARK

Hiking—In the Park area of 65,000 acres, with mountains ranging up to 2,400 feet in altitude, are many delightful hikes along well-defined trails. The Resident Camp Manager will be glad to assist in planning such hikes. (Wide variety of trees, interesting

rock formations, natural bear caves, 45 acres of deer pens with over thirty native and fallow deer.)

Swimming—There are two public swimming pools and a small and a large lake. The large lake, located in the valley below the Administration Building, covers 120 acres. A well-equipped bathhouse overlooks the lake.

Boating—The large lake has facilities for light boating.

Fishing and Hunting—There are seventy miles of good trout streams, twenty of which are open to fishing. Special rules and regulations pertain to fishing and hunting, and a Park permit (issued without charge) is required in addition to a New York State license. No shooting or hunting is allowed between February 15 and October 15.

Park Museum—The Park Museum, with its collections from the Buffalo Museum of Science, is located in the Administration Building.

Riding—Saddle ponies can be rented at the stable. There are numerous saddle trails.

Games—An athletic field has a baseball diamond and tennis courts.

Dancing—Dances are given at the dance pavillion.

Summer Program—The summer Park program includes public camp fires, band concerts, swimming meets, baseball games, treasure hunts, and many other diversions.

GUY J. EVANS,
Camp Manager

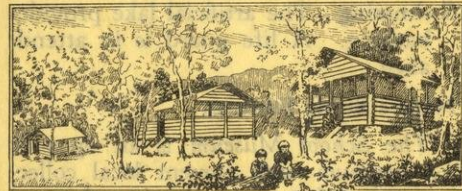
OSCAR M. WADDELL,
Resident Camp Manager

THE BUFFALO SOCIETY OF NATURAL SCIENCES

The educational and scientific programs of the Buffalo Society of Natural Sciences and the maintenance and operation of the Museum building depend upon three sources of income: Membership dues, income from a small endowment, appropriations from the City of Buffalo.

The various classes of membership are Junior (for those under 21), \$5; Educational (for those engaged in educational work), \$5; Annual, \$10; Patron, \$25; Contributing, \$50; Sustaining, \$100; Life, \$250.

If you are not already a member of the Society, you are cordially invited to share in its work by becoming one. Membership privileges are outlined in "How the Museum Serves Youth and the Adult," a copy of which will be sent upon request.



Recreational Opportunities for Campers

at the Camp of the
Buffalo Society of Natural Sciences

Allegany State Park

July 1 - August 24, 1932

56 H 8
45
6
73
93



Figure 133 Bird's-eye view of Allegany State Park

NO. 1 TEST WELL, QUAKER LAKE
 Allegany State Park, New York
 Lot 34, T. 1 N., R. 7 W.
 Elevation about 1875

1	19	Sand and gravel, particles up to 2 mm. of quartz in part rounded with pieces of red and gray siltstone in part rounded
2	19 - 20	(Bulk of sample lost) SALAMANCA - sandstone, very fine, hard, gray
3	20 - 25	(Bag broken) Same
4	25 - 30	Same
5	30 - 35	Same (Bag broken)
6	35 - 40	(Bag broken) Conglomerate - pebbles to 1/8 inch of quartz in medium gray sandstone
7	40 - 45	(Bag broken) Same. Total Salamanca 26 feet
8	45 - 50	LOWER CATTARAUGUS - shale, light gray, slightly calcareous
9	50 - 55	Shale, blue-gray, hard, very calcareous
10	55 - 60	Same but only moderately calcareous
11	60 - 65	Shale, light gray, slightly calcareous, soft
12	65 - 70	Shale, blue-gray, slightly calcareous or dolomitic
13	70 - 75	Same
14	75 - 80	Same
15	80 - 85	Same with some grains of quartz (water)
16	85 - 90	(Bag broken) (WOLF CREEK?) - sandstone, medium, light gray, many shale fragments
17	90 - 95	(Bag broken) Same (one large chunk of shale, caved)
18	95 - 100	Shale, gray, very calcareous or dolomitic (some water)
19	100-105	Same
20	105-110	Siltstone - light gray, slightly calcareous
21	110-115	Like above, harder, breaks in chips
22	115-120	Same as above
23	120-125	(Bag broken) Siltstone, or shale, silty, gray, calcareous
24	125-130	Same
25	130-135	Same
26	135-140	Same
27	140-145	Shale, gray, very slightly calcareous
28	145-150	Same
29	150-155	Shale, gray and red, calcareous or dolomitic
30	155-160	Siltstone, red and gray, calcareous
31	160-165	Same, somewhat finer grain
32	165-170	Siltstone, gray, very calcareous or dolomitic
33	170-175	Siltstone, gray, calcareous; shale, red
34	175-180	Same but less shale
35	180-185	Same
36	185-190	Same. Total Lower Cattaraugus 145 feet
37	190-195	CHEMUNG - shale, silty, dark gray, calcareous or dolomitic
38	195-200	Same
39	200-205	Same
40	205-210	Siltstone, gray, very calcareous or dolomitic mixed with shale like above <u>water</u>

No. 1 test well, Quaker Lake, Allegany State Park, New York (cont.)

41	210 - 215	Shale, silty, gray, calcareous or dolomitic
42	215 - 220	Same
43	220 - 225	Same
44	225 - 230	Same
45	230 - 235	Same
46	235 - 240	Same
47	240 - 245	Same
48	245 - 250	Shale, silty, gray and red, calcareous
49	250 - 255	Same
50	255 - 260	Same
51	260 - 265	Shale, dark gray, hard, calcareous
52	265 - 270	Same
53	270 - 275	Same
54	275 - 280	Shale, silty, hard, gray, very calcareous
55	280 - 285	Same
56	285 - 290	Same
57	290 - 295	Same
58	295 - 298	Siltstone, gray, calcareous
59	298 - 302	T.D. Same. Chemung entered 112 feet

- F. T. Thwaites
November 26, 1932

QUAKER LAKE TEST WELL NO. 1, ALLEGANY STATE PARK, NEW YORK

Lot 34, T. 1 N., R. 7 W.

W. H. Hulme, Driller, 1932

Samples examined by F. T. Thwaites

Elevation about 1875

SURFACE C A T T A R A U G U S	19	0-5	5		Sand, and sandy loam, no sample	8" conductor 8 6" drive p 19 1/2 27 water 6" hole
		5-19	14		Gravel and sand mixed with boulders	
		19-35	16		Sandstone, very fine, hard, gray (Salamanca)	
		35-45	10		Conglomerate, pebbles to 1/8" of vein quartz	
	171	45-50	5		Shale, light gray, slightly calcareous	
		50-60	10		Shale, blue-gray, hard, calcareous	
		60-80	20		Shale, light gray, soft, slightly calcareous	
		80-85	5		Shale, like above, some sand grains WATER	
		85-95	10		Sandstone, medium, light gray (Wolf Creek)	
		95-105	10		Shale, gray, very calcareous, SOME WATER	
		105-120	15		Siltstone, light gray, slightly calcareous	
		120-140	20		Siltstone, fine grained, gray, calcareous	
		140-150	10		Shale, gray, slightly calcareous	
		150-155	5		Shale, gray; shale, red, dolomitic	
		155-165	10		Siltstone, red and gray, calcareous	
		165-170	5		Siltstone, gray, very dolomitic	
		170-190	20		Siltstone, gray, calcareous; shale, red	
	CHEMUNG	190-205	15		Shale, silty, dark gray, dolomitic	
		205-210	5		Siltstone, gray, very dolomitic, WATER	
		210-245	35		Shale, silty, gray, dolomitic	
		245-260	15		Shale, silty, gray, and red, calcareous	
		260-275	15		Shale, dark gray, hard, calcareous	
		275-295	20		Shale, silty, hard, gray, very calcareous	
	112	295-302	7		Siltstone, gray, calcareous	

Specific capacity 0.28 g. p. m. per foot of drawdown

NO. 2 TEST WELL, QUAKER LAKE,
Allegany State Park, New York
Lot 34, T. 1.N., R. 7 W.
W. L. Hulme, Driller, 1932

0 - 10 No samples
10 - 15 Gravel, fine, sandy, pebbles to 1/2 inch of siltstone
and quartz, latter mainly from conglomerate
15 - 20 Same
20 - 25 Same (except that larger fragments of siltstone in-
cluding some Onondaga formation are broken - probably a
rubble or talus deposit)
25 - 30 Same
30 - 35 Same
35 - 40 Same
40 - 45 Sand, fine, gray (water)
45 - 50 Same (very slight effervescence) 6 inch drive pipe to
50 1/2 feet
50 - 55 Shale, gray, slaty
55 - 60 Shale, gray, silty, calcareous
60 - 65 Same
65 - 70 Same (calcite largely in form of veins)
70 - 75 Shale like above with much siltstone, light gray, cal-
careous, a few larger grains of sand
75 - 80 Shale, gray; some siltstone, light gray, calcareous
80 - 85 Same W A T E R
85 - 90 Same
90 - 95 Same
95 - 100 Shale, gray; little siltstone, light gray, calcareous
100 - 105 Same
105 - 110 Same
110 - 115 Siltstone, gray, calcareous
115 - 120 Same
120 - 125 Same
125 - 130 Same
130 - 135 Same
135 - 140 Same (WATER)
140 - 145 Shale, gray, slightly calcareous
145 - 150 Same
150 - 155 Same
155 - 157.5 Shale like above; siltstone, light gray, calcareous

- F. T. Thwaites,
December 21, 1932

Cattaraugus Co

Allegheny Park

Upper Red House Valley

1 lot 6

City of Bradford P & L Co

Sept 1915

Elev 1852 A

31'

365

983-1029

1045-1084

gravel

fresh water set 6 1/4 in

sand (chipments)?

wh. sd

Brewer Bradford ✓

Rainfall

gauge? ✓

Flow of springs

measure ✓

ground water levels

relation to pond

Temperatures ✓

chemical tests

supplies

typ paper ✓

carbon " ✓

void

Aug 1	out 15.7	Twin Springs	18.2	2.5
3	40.9	"	adm. Bldg 70.0	29.1
6	47.7	Twin Spring	50.1	2.4
8	50.1	E. part of Park	17.6	67.5
10	67.6	Twin Spring	70.1	2.5
11	70.1	Red Horse valley	10.0	39.9
12	10.0	adm Bldg	56.4	46.4
15	73.6	adm Bldg	102.2	28.6
18		Twin Spring	00.0	2.5
19	000	adm. Bldg	30.1	30.1
22	30.1	"	58.1	28.0
23	76.5	" (89.2)	02.2	25.7
		76.5		
24	02.2	adm Bldg	29.1	26.9
25	29.1	Down Quake	41.1	12.0

Roscoe in forestry

NOTED ON NO. 1000

left

Taylor, John. Lake Well

L.E. Bardsley, Liller

Coulters, Pa. See France

Kapala NY?

W H Hulme

32 Leland Ave,

Bradford Pa

dilled in park

police 26 A

chief 11 Y

Toilet pits, annette, Springs 1927

except ASNH

Hansen live dry well now use castles

disinfectant neosote was used

no solid ledges in pits - at 6 ft.

AJ Roscoe -

Forester

P

38171
13 = 71

July 2 ^{37.3} out 74.1 return 98.1 water 24.0
 Trip to Bradford Pa to see Brewer
 5 98.1 21.8 23.7
 Trip to Headquarters for data - up Quaker
 Run etc.
 6 21.8 54.6 32.8
 to admin. Bldg etc
 7 to admin Bldg. &
 Sweetwater Spring 54.6 - 91.7 47.1
 9 to Bradford for spring
 11 Monday aft. Bear Spr. etc 20.0
 13 out 85.2 back 19.7 34.5
 14 19.7 60.7 41.0
 15 60.7 26.9 66.2
 to Olean to see Dr. Atwater
 16 26.9 58.6 31.7
 gaging springs - Quaker Bridge etc
 20 93.1 adm. Bldg, Red House 29.2 36.1
 21 29.2 Twin Springs 31.7 2.5
 22 31.7 Quaker HQ etc & 64.2 32.5
 Wolf Run valley
 23 64.2 Twin Spring 66.6 2.4
 25 66.6
 and Park - Camp 29.7 63.1
 McIntosh etc
 26 29.7 Salamanca
 & to Port Park 100.7 71.0
 27 0.7 Twin Spr. twice 5.9 5.2
 120 - 28 5.9 Twin Spr. time 11.1 5.2
 29 0.1 Springs etc 38.1 13.2 13.1
 30 13.2 15.7 2.5

A FEW FIGURES REGARDING THE PARK

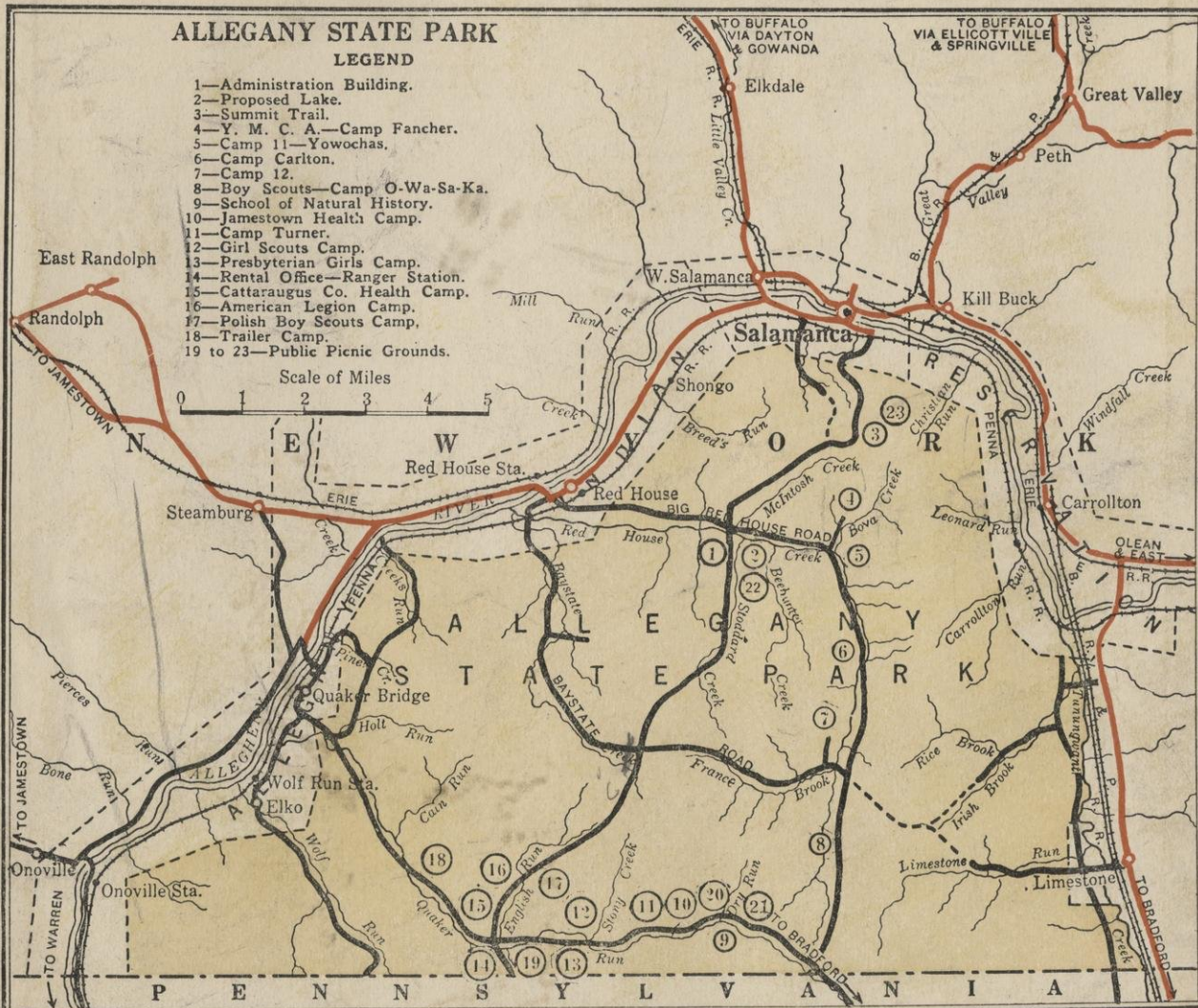
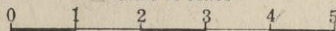
Area 65,000 acres; distance around boundary 45½ miles; highest elevation 2475 feet above sea level; distances from Administration Building to, Quaker Run Camping area 9 miles, Salamanca 7 miles, Olean 25 miles, Jamestown 29 miles, Bradford 13 miles.

ALLEGANY STATE PARK

LEGEND

- 1—Administration Building.
- 2—Proposed Lake.
- 3—Summit Trail.
- 4—Y. M. C. A.—Camp Fancher.
- 5—Camp 11—Yowochas.
- 6—Camp Carlton.
- 7—Camp 12.
- 8—Boy Scouts—Camp O-Wa-Sa-Ka.
- 9—School of Natural History.
- 10—Jamestown Health Camp.
- 11—Camp Turner.
- 12—Girl Scouts Camp.
- 13—Presbyterian Girls Camp.
- 14—Rental Office—Ranger Station.
- 15—Cattaraugus Co. Health Camp.
- 16—American Legion Camp.
- 17—Polish Boy Scouts Camp.
- 18—Trailer Camp.
- 19 to 23—Public Picnic Grounds.

Scale of Miles



THE ALLEGANY STATE PARK

Is for your enjoyment

We are pleased to have you with us and hope you will visit the Park many times in the future.

MAKE IT YOUR SUMMER HOME

Comfortable, well equipped cabins and tents rented at reasonable rates.

Fully equipped picnic grounds.

A well stocked general store, in the Quaker Run camping Area, open from June 15th to Sept. 15th.

Swimming, tennis, baseball, quoits, horseback riding.

Restaurants and refreshment stands for meals, lunches and soft drinks.

Miles of hiking and bridle trails.

Museum and Restaurant in the Administration building.

ALLEGANY STATE PARK COMMISSION

HEADQUARTERS ADDRESS:

Administration Building,
Red, House N. Y.
Phone: Steamburg, 13-A

RENTAL OFFICE ADDRESS:

(June 1st to Sept. 15th)
Quaker Bridge, N. Y.
Phone: Steamburg, 26-C

SEASON OF 1932	Cr.	Zoology	Geology	Botany	Birds	Nature Study
Benson, Frances	6		^{out} 2	1		
Durfee, Wilda			2			
Eaton, Anna					1	1
Eno, Esther W.	Cert.			1		
Fox, Dennis	3	1				
Haertel, May					1	1
Heffner, Bain L.		Res. Ind.				
Heine, Enid	Cert.	1		1	(V)	
Heydweiller, Mary	3					1
La Mar, Kate	Cert.			2	2	
Mason, Carol	6		2	Res.under Direction		
Mayer, Charles	6	1				1
Moose, W. B.	6		-		2	2
Page, Ransom	6	1			2	
Pinney, Dr. Mary		Res.under Direction			1	
Schneider, Fannie	Cert.	1		1		(V)
Schober, Teresa	6				1	1
Snearing, Helen	Cert.			1		
Stekl, Eleanor B.	6	1				1

Season of 1932	Cr.	Zoology	Geology	Botany	Birds	Nature Study
Strickler, Eunice	Cert.	1				
Wagner, Esther E.	6			2	2	
Waterfall, Myrtle	Cert.				1	1

activity on

Mr. Thwaites

Season of 1928	Or.	Geology	Geology	History	Rings	Notes
Wetmore, Myrtle	0				1	1
Wetmore, Myrtle	0				1	
Wetmore, Myrtle	0				1	

Original

BEFORE MAKING OUT YOUR ACCOUNT, PLEASE READ RULES ON BACK OF THIS BLANK

The New York State Education Department, New York State Museum

To F. T. Thwaites Dr.

Address

RECEIVED
ASSISTANT DIRECTOR
SEP 17 1932
AND SECRETARY
N. Y. STATE MUSEUM
Other expenses

Month Day 1932 Items Transportation Hotel and meals Total

For travel in personal automobile while engaged in geological field work in Allegany State Park and vicinity

July 2	From Allegany School of Nat Hist. To Bradford to see Char Brewer and return	24.0	\$ 1 44		
5	From ASNH to Quaker Run valley etc	23.7	1 42		
6	" " to Administration Bldg & return	32.8	1 97		
7	" " " Sweetwater Spring " "	47.1	2 82		
11	" " " Bear Spring " "	20.0	1 20		
13	" " " field work in park " "	34.5	2 07		
14	" " " " " " " "	41.0	2 46		
15	" " " Olean to see Dr. Atwater " "	66.2	3 97		
16	" " " Quaker Bridge etc " "	31.7	1 90		
20	" " " Red House " "	36.1	2 16		
21	" " " Twin Springs " "	2.5	15		
22	" " " Wolf Run etc " "	32.5	1 95		
23	" " " Twin Spring " "	2.4	14		
25	" " " McIntosh Camp " "	63.1	3 79		
26	" " " Salamanca and E part of park " "	71.0	4 26		
27	" " " Twin Springs twice " "	5.2	31		
28	" " " " " " " "	5.2	31		
29	" " " field work in park " "	13.1	78		
30	" " " Twin Springs " "	2.5	15		

ASNH = Allegany School of Natural History

Approved at \$

Received payment

[Sign here]

The New York State Education Department,

To.....Dr.

Address.....

Month Day 19.....	Items	Trans- portation	
Aug 1	ASNH to Twin Springs & return	2.5	15
3	" " Admin. Bldg etc " "	29.1	174
6	" " Twin Springs " "	2.4	14
8	" " Epantof Park " "	67.5	405
10	" " Twin Springs " "	2.5	14
11	" " Red House valley " "	39.9	239
12	" " Administration Bldg etc " "	46.4	279
15	" " " " " "	28.6	173
18	" " Twin Springs " "	2.5	14
19	" " Admin. Bldg " "	30.1	180
22	" " " " " "	28.0	168
23	" " " " " "	25.7	154
24	" " " " " "	26.9	161
25	" " down Quaker Run " "	12.0	72
		53 90	
		50 00	
			1.44
			1.42
			1.97
			2.82
			1.20
			2.07
			2.46
			3.97
			1.90
			2.16
			.15
			1.95
			.14
			3.79
			4.26
			.31
			.31
			.78
			.15
			.15
			1.74
			.15
			4.05
			.15
			2.39
			2.79
			1.73
			.15
			1.80
			1.68
			1.54
			1.61
			.72
			53.90

Approved at \$

Received payment

[Sign here].....

STATE MUSEUM

F. T. THWAITES

Dept. of Geology, University of Wisconsin
Madison, Wisconsin

32

Expenses incurred in connection with geological field work in western New York, using personal automobile, with headquarters at Allegany School of Natural History, Allegany State Park.

July 2	Auto mileage, Allegany School of Natural History to Bradford, and return, 24 miles @ 6¢ per mile	1 44
5	Auto mileage, A.S.N.H. to Quaker Run Valley and vicinity and return, 23.7 miles @ 6¢ per mile	1 42
6	Auto mileage, A.S.N.H. to Administration Building and return, 32.8 miles @ 6¢ per mile	1 97
7	Auto mileage, A.S.N.H. to Sweetwater Spring and return, 47.1 miles @ 6¢ per mile	2 82
11	Auto mileage, A.S.N.H. to Bear Spring and return, 20 miles @ 6¢ per mile	1 20
13	Auto mileage, A.S.N.H. to do field work in vicinity of Park and return, 34.5 miles @ 6¢ per mile	2 07
14	Auto mileage, A.S.N.H. to do field work in vicinity of Park and return, 41 miles @ 6¢ per mile	2 46
15	Auto mileage, A.S.N.H. to Olean and return, 66.2 miles @ 6¢ per mile	3 97
16	Auto mileage, A.S.N.H. to Quaker Bridge and vicinity and return, 31.7 miles @ 6¢ per mile	1 90
20	Auto mileage, A.S.N.H. to Red House and return, 36.1 miles @ 6¢ per mile	2 16
21	Auto mileage, A.S.N.H. to Twin Springs and return, 2.5 miles @ 6¢ per mile	15
22	Auto mileage, A.S.N.H. to Wolf Run and vicinity and return, 32.5 miles @ 6¢ mi.	1 95
23	Auto mileage, A.S.N.H. to Twin Spring and return, 2.4 miles @ 6¢ per mile	14
25	Auto mileage, A.S.N.H. to McIntosh Camp and return, 63.1 miles @ 6¢ per mile	3 79
	Carried forward	<hr/> \$27 44

STATE MUSEUM

F. T. THWAITES

DEPT. OF GEOLOGY, UNIVERSITY OF WISCONSIN
MADISON, WISCONSIN

-2-

32

	Brought forward	\$ 27 44
July 26	Auto mileage, A.S.N.H. to Salamanca and Eastern part of park and return, 71 miles @ 6¢ per mile	4 26
27	Auto mileage, A.S.N.H. to Twin Springs twice and return, 5.2 miles @ 6¢ per mile	31
28	Auto mileage, A.S.N.H. to Twin Springs twice and return, 5.2 miles @ 6¢ per mi.	31
29	Auto mileage, A.S.N.H. to do field work in park and return, 13.1 miles @ 6¢ per mile	78
30	Auto mileage, A.S.N.H. to Twin Springs and return, 2.5 miles @ 6¢ per mile	15
Aug. 1	Auto mileage, A.S.N.H. to Twin Springs and return, 2.5 miles @ 6¢ per mile	15
3	Auto mileage, A.S.N.H. to Administration Building and return, 29.1 miles @ 6¢ mi.	1 74
6	Auto mileage, A.S.N.H. to Twin Springs and return, 2.4 miles @ 6¢ per mile	14
8	Auto mileage, A.S.N.H. to eastern part of Park and return, 67.5 miles @ 6¢ per mi.	4 05
10	Auto mileage, A.S.N.H. to Twin Springs and return, 2.5 miles @ 6¢ per mile	14
11	Auto mileage, A.S.N.H. to Red House Valley and return, 39.9 miles @ 6¢ per mile	2 39
12	Auto mileage, A.S.N.H. to Administration Building and vicinity and return, 46.4 miles @ 6¢ per mile	2 79
15	Auto mileage, A.S.N.H. to Administration Building and return, 28.6 miles @ 6¢ mi.	1 73
18	Auto mileage, A.S.N.H. to Twin Springs and return, 2.5 miles @ 6¢ per mile	14
19	Auto mileage, A.S.N. H. to Administration Building and return, 30.1 mi. @ 6¢ per mi.	1 80
22	Auto mileage, A.S.N.H. to Administration Building and return, 28 mi. @ 6¢ per mi.	1 68
	Total	\$ 50 00

Received payment,

F. T. Thwaites

TABLE FOR OPEN WEIR MEASUREMENT

Length	Depth	Rate of flow per Min.	
		<u>cu. Ft.</u>	<u>GALS.</u>
6"	1/8	.06	0.45
"	1/4	.30	2.25
"	3/8	.54	4.04
"	1/2	.84	6.28
"	5/8	1.14	8.53
"	3/4	1.56	11.69
"	7/8	1.92	14.36
"	1	2.40	17.95
"	1-1/8	2.82	21.09
"	1-1/4	3.30	24.68
"	1-3/8	3.84	28.72
"	1-1/2	4.38	32.76
"	1-5/8	4.92	36.80
"	1-3/4	5.52	41.29
"	1-7/8	6.12	45.78
"	2	6.78	50.71

Weir to be made of a good sound board about 1" x 8" x 3', with a 3" x 6" Notch. The notch should be beveled in the direction of the flow.

To get the depth of flow over the weir, drive a stake in the pond 3 to 5 ft. upstream from the weir, so that the top of the stake is level with the bottom of notch in the weir. Measure from top of stake to water surface to get flow over weir.

June 20, 1932

TO ALL STATE DEPARTMENTS AND AGENCIES:

Department of Audit and Control

Extracts from the Rules and Regulations governing expenses incurred on account of travel

July, 1932

This travel guide is prepared for the use of employees and others transacting business for the State, in order that they may present their claims in proper form and in accordance with the requirements of the Department of Audit and Control.

Strict observance of these rules will insure a ready audit and prompt payment of claims for reimbursement.

Section 7.--Travel Expenses

1. Funds.--Employees traveling on official business must provide themselves with sufficient funds for all current expenses, and are expected to exercise the same care in incurring expenses that a prudent person would exercise if traveling on personal business.

2. Reimbursable expenses.--Traveling expenses which will be reimbursed are confined to those expenses usual and essential to the ordinary comforts of a traveler, and must be accounted for in detail, as follows:

a. The duty or business necessitating the expenses. The mere statement "On official business" or "By direction of" is not sufficient, but the actual duty or business must be given. (Section 12, State Finance Law.)

b. The employee should keep a true memorandum of actual expenses paid from day to day and insert them in his traveling voucher in chronological order as incurred, with the amount of each expenditure.

c. The consolidation of charges as "subsistence," "maintenance," "board", "room", "meals", except where a weekly rate is given accompanied by a receipt, will be rejected. Each meal, the price and the locality where obtained, must be given.

3. Travel together.--Two or more officials or employees traveling together must render separate expense accounts unless they are with survey or labor parties under the direction of a chief. In such cases the names of all travelers charged for must appear on the account.

4. Official station.--Unless otherwise specified or provided by law, the limits of an official station in a city or town are the corporate limits of the city or town where the official station of the employee is located, except in greater New York where the territorial limits of the borough shall govern.

For the purpose of auditing accounts for expenses incurred by state officers and employees, each individual shall be considered connected with the main office at Albany, unless specially detailed to a branch office elsewhere.

Each department shall file with the Department of Audit and Control a list of employees, their official designations other than Albany and where detailed for duty. Notice should be sent promptly indicating any change in designation.

4a. Field employees.--Official station for field employees residing within a distance of 25 miles from the main office at Albany, shall be construed as Albany.

Official station for field employees residing within 25 miles of any branch office shall be construed as the place where such branch office is located.

No allowance at official station.--Under no circumstances will subsistence expenses be allowed an employee at his official station or at the place where he resides.

25 Mile Zone.--Field employees residing within 25 miles of their official station must reach that office and depart therefrom at their own expense as do other employees.

Field employees performing duties within 25 miles of their official station or residence will be reimbursed for expenses incurred for commutation and noonday lunch. When satisfactorily explained that it is for the best interests of the state, regular subsistence charges may be allowed.

Emergency Services.--Expenses for stenographic and typewriting services incurred by field employees in excess of \$2.00 must not be included in travel expense accounts. Such expenses must be sent to the Civil Service Commission and charged against the appropriation for Personal Service.

5. Public officials will not be reimbursed for travel expenses between their official station and their place of residence unless such travel is performed on official business. In presenting claims for such charges, the nature of the business must be specified.

6. Travel outside state.--Travel outside of the state will not be permitted unless provided by law.

7. Travel in foreign countries;--Expenses incurred in foreign travel must be submitted in terms of American currency.

Rates for subsistence must not exceed comparative rates in America.

Subvouchers accompanying accounts must be fully translated into English, the amount of the charges stated in American money and the rate of exchange at the time the expense was incurred, specified.

8. Tips or gratuities.--Reimbursement for tips or gratuities is not permitted by the constitution of the State of New York.

9. Personal charges.--All personal charges must be deducted from hotel bills before they are presented with accounts for payment.

10. Personal telephone calls.--Telephone calls applying for leave of absence or extension thereof or inquiry as to, or as to payment of salary or expense vouchers, and answers thereto, or those as to any matter of a purely personal nature, must not be made at state expense, and charges therefor will not be allowed.

11. Local telephone calls.--Charges for local calls must give the name of the party called and nature of business.

12. Long-distance calls.--Charges for long-distance telephone calls on official business will be allowed provided a statement is furnished showing the name of the party with whom communication was held, the points between which service was rendered, the date, and the amount paid for each call.

13. Copies of telegrams.--A copy of each official telegram paid for by the traveler must accompany his expense account.

14. Travel from unauthorized places.--Transportation of commissions, boards of managers, state officials, employees and others at the expense of the state will be allowed only from their official station. Any such person taking a summer residence either in this or in a foreign state at a distance greater than his official station, will be permitted to charge only from his official station.

15. Baggage.--Baggage consisting of public property, or private property to be used exclusively for official business, and wearing apparel needed by the traveler for the journey may be transported in the necessary containers. The number and kind of pieces transported must be stated in the expense account.

Transfer of baggage.--Necessary charges for the transfer of baggage will be allowed at not to exceed customary local rates. Necessity for the transfer of hand baggage must be explained.

Transportation

The fare in all cases must not exceed the regular first-class fares charged the general public.

Indirect route travel.--Any person traveling by an indirect route must assume the extra expense as reimbursement will be based only upon such charges as would actually be incurred by traveling the most direct route.

Travel vouchers must state the mode of transportation in addition to the following information:

- (a) Date incurred.
- (b) Places between which travel is performed.
- (c) Time of departure.
- (d) Time of arrival at destination.
- (e) If by auto, the mileage between each stopping point.
- (f) If by train, the name of the railroad or railroads.

Air travel.--Reimbursement for transportation by air lines will be made only when the rate charged does not exceed the cost of transportation by rail, boat, or any usual means of transportation, plus subsistence charges that would be incurred between the points traveled.

The seat check must accompany the charge and the time of departure and arrival must be incorporated in the bill.

Taxicabs.--Automobile, omnibus, transfer coach, hack, hotel bus, or taxicab charges will not be permitted when street cars or regularly established public bus lines are obtainable, unless reasons are given that will justify such charges.

Assistance charges.--Whenever employees are traveling with insane or charitable patients, a nominal sum will be allowed for assistance, but such a charge must be explained and the number in the party given.

Transportation requests.--The use of transportation requests on transportation companies will be allowed when it is deemed for the best interests of the state.

Sleeping, parlor car and steamer accommodations.--The use of Pullman services is limited to berth rates on sleeping cars, and chair rates on parlor cars.

All charges for sleeping and parlor car accommodations must be supported by berth or seat check.

Customary stateroom accommodations will be allowed on steamers and other vessels when fare does not include berth.

Hudson River Steamers.--On steamers plying the Hudson River, stateroom charges will be limited to five dollars. The name of steamer and number of room must be shown on voucher and when stateroom checks are issued they must be attached.

State Owned Automobiles.--When bills are presented for state owned cars or when they are used in the performance of official duties, the license number must appear on the voucher.

Personally Owned Automobiles.--When the use of a personally owned automobile is authorized by a department to operate on business for the state, a rate of not more than 6 cents per mile will be allowed regardless of the number of persons transported.

Personally owned automobiles must not be used in preference to trains, buses, boats or other means of transportation, unless there is a decided advantage in favor of the state and such advantage must be pointed out to this office on all bills rendered for such charges.

When it is deemed for the best interests of the state, charges for the use of personally owned automobiles will be reduced to rates charged by common carriers.

Charges for garage, gasoline, accessories, repairs, depreciation, replacements, grease, alcohol, flushing crankcases, towage and like speculative expenses will not be allowed.

Unnecessary meals and other traveling expenses, due to the use of automobiles will not be allowed.

When a personally owned automobile is used, it must be stated in the bill whether reimbursement is claimed on a mileage or transportation fare basis.

Insurance.--Persons using their own cars in the performance of their duties for the State of New York must carry insurance for a minimum liability for injuries to persons to be placed at from \$5,000 to \$10,000 and a property damage provision to the extent of \$1,000.

The policy should run in favor of the individual owning the car "and/or the state of New York, and/or John Doe, Commissioner of.....Department, as interest may appear."

No claim will be honored for payment for the use of a personally owned automobile unless the following statement is incorporated in the bill.

Insurance is carried as follows:

Liability for injuries--\$5,000. to \$10,000.

Property damage--\$1,000.

Name of insurance company.....

Policy in favor of.....

Number of policy.....

Policy expires.....

License No.....

Hired automobiles.--Whenever authorized, a charge for hired automobiles will be permitted for a period not to exceed ten days (sec. 36, Finance Law), at the prevailing rate in the specific locality. The charge must be supported by a receipted subvoucher showing the nature of the business, time employed, distance traveled, places visited and by whom.

Subsistence

Subsistence expenses include all charges for meals and lodging.

A day consists of three meals and lodging beginning with the first expense incurred in the form of subsistence after leaving official station including meals and sleeping accommodations enroute.

Employees in field work will be allowed their maintenance for Sundays and holidays while in the field.

Personal charges appearing on a hotel bill must be deducted and the deduction shown on the bill.

Following is a list of the municipalities in the state and the maximum rates which will be allowed for subsistence:

New York.....	\$8.00 per day transient 38.50 per week permanent
Albany.....	
Binghamton.....	
Buffalo.....	
Mount Vernon.....	
Niagara Falls.....	\$7.00 per day transient
Rochester.....	35.00 per week permanent
Schenectady.....	
Syracuse.....	
Troy.....	
Utica.....	
Yonkers	

All places not enumerated not to exceed \$6.00 per day transient, \$35.00 per week permanent.

Expenses incurred exceeding one week will be considered as permanent.

Out of state.--When traveling outside of the state, subsistence will be governed by the above rates, basing such rate upon the comparative population of like municipalities.

EXTRACT - PENAL LAW

Sec. 1872. FRAUDULENTLY PRESENTING BILLS OR CLAIMS TO PUBLIC OFFICERS FOR PAYMENT.--A person who, knowingly with intent to defraud, presents, for audit, or allowance, or for payment, to any officer or board of officers of the state, or of any county, town, city or village, authorized to audit, or allow, or to pay bills, claims or charges, any false or fraudulent claim, bill, account, writing or voucher, or any bill, account or demand, containing false or fraudulent charges, items or claims, is guilty of a felony.

Very truly yours,

MORRIS S. TREMAINE,

Comptroller

By C. H. Mullens

Assistant Deputy Comptroller

CHANGE IN TRAVEL EXPENSE RULESNEW YORK STATE MUSEUM

April 21, 1932

To Assistant Commissioners
Directors and Chiefs

A communication from the State Comptroller contains the following information concerning a revision of the allowances for traveling:

"In view of the fact that the Legislature has reduced by ten percent all appropriations for travelling expenses, we are obliged to revise our allowances for subsistence accordingly. Therefore, effective May 1, 1932, the rates that will be permitted for subsistence, which includes hotel accommodations and meals, will be as follows:

New York City.....)	\$ 8.00 per day transient \$38.50 per wk. permanent
Albany.....	
Binghamton.....	
Buffalo.....	
Mount Vernon.....	
Niagara Falls.....	\$ 7.00 per day transient
<u>Rochester</u>	\$35.00 per wk. permanent
Schenectady.....	
Syracuse.....	
Troy.....	
Utica.....	
Yonkers.....	

"All places not enumerated not to exceed \$6.00 per day transient, \$35.00 per week permanent."

Will you please bring this information to the attention of any employees under your supervision who might be effected.

Lloyd L. Cheney

Director, Administration Division
New York State Education Department

NEW YORK STATE MUSEUM

ALBANY, N.Y.

MEMORANDUM FOR FIELD EXPENSES OF PERSONS

WORKING FOR THE STATE MUSEUM

Official Regulations

1. Receipts of vouchers are required for all purchases. Receipt books or slips are furnished by the State Museum for this purpose.
2. Directions for expenses at hotels in New York State are given on the accompanying Memorandum No.1.
3. A written permit to use a personal automobile for official State Museum work must be authorized in advance by the Director of the Museum.
4. Before a personal automobile can be authorized for official use, the insurance policy must include the following underlined provision:-

"In consequence of the foregoing this office has determined to follow the suggestion of the State Department of Law and you are hereby notified that all persons using their own automobiles in the performance of their duties for the State of New York must carry a minimum liability for injuries to be placed at from \$5,000 to \$10,000 and a property damage provision to the extent of \$1,000 in a policy of insurance and the policy must run in favor of the individual owning the car "and/or the State of New York, and/or Frank P. Graves, Commissioner of The Education Department, as interest may appear."

5. This policy must be sent in advance to the Director for record and approval.

6. For the use of personal automobiles the rate of 6¢ per mile is allowed, except when paralleling a regular railroad or bus line, where only 3.6¢ is allowed.

7. Expense accounts should be sent to the Assistant Director and Secretary of the State Museum, Albany, N. Y. They should be rendered as a single voucher (or bill) to cover the whole period worked, and not to exceed total amount allotted by the Director. Expense accounts must be carefully kept in accordance with the following general rules:

a. All vouchers to be typewritten in triplicate, on standard forms to be furnished. Or they may be written with pencil or pen, a single copy, and sent to the Museum for typing in triplicate, in regular form. These copies will be returned for signatures and affidavit.

b. A statement of the duties necessitating the expenses must appear at top of voucher; for example: "Field expenses in connection with biological work in western New York;" or "Expenses incurred in connection with geological work on Norwich Quadrangle, New York."

c. An itemized account of actual expenses paid from day to day should be kept and inserted in the voucher in chronological order. The items will normally include only automobile mileage at 6¢ per mile, and board and lodging. If other charges seem necessary, write the Museum office for further information as to items allowed.

d. Automobile mileage items must state from what point to what point is covered, and the number of miles. Subsistence

items should state the rate charged by day or week, and with what day and meal the charge began and ended.

e. Receipts are required for board and lodging (even for one night), but not for single meals.

f. If an assistant's or guide's services and subsistence are necessary, consult the Museum office, and before making any arrangements, if possible.

g. In executing the affidavit on field expense voucher, give official title, as "Temporary Scientific Expert."

8. When beginning work in the field or on any project, the Museum should be notified, and also when the work is completed.

9. Salary vouchers will be sent out monthly for signature, in duplicate. No affidavit required. Prompt return of these vouchers to the Museum office will facilitate early payment. Indicate whether salary checks should be forwarded to field or home address.

Chas. C. Adams,
Director, New York State Museum

Alvin G. Whitney,
Assistant Director and Secretary

May 18, 1932.

ALLEGANY SCHOOL OF NATURAL HISTORY

GEOLOGY 2

Final examination, August 24,
1932

- (1) Discuss the significance and origins of "open-work" gravels.
- (2) Discuss the main causes of terrace formation.
- (3) What criteria can be used to distinguish terraces formed during separate stages of glaciation?
- (4) Discuss Lahee's method of correcting aneroid barometer readings.
- (5) If were going to do the problem of the Allegany terraces over again suggest what changes in methods you would use and why.

WRITE ON ANY FOUR (4) QUESTIONS

GEOLOGY

Teaching. The courses in Geology were more affected by the Depression than was the rest of the School. Only one student registred for Geology 1 and she withdrew before work began. Three students entered Geology 2 and completed the course. The choice of a suitable research problem for a class of girls was difficult. As has long been known the immediate vicinity of the School is devoid both of good rock outcrops and of glacial drift. Many of the problems, such as the oil and gas resources, have been already worked by members of the faculty. It is, therefore, necessary to go considerable distances to find something new for advanced students. The subject chosen, partly because the writer himself was interested, was the Terraces of Allegheny River. An attempt was made to investigate the number, position, grade, and relation to glacial drifts of the terraces. In the short time available it is evident that final conclusions could not possibly be reached. It is hoped, however, that constructive suggestions are now possible on the last point. It had been hoped that light would also be thrown on the cause of the reentrant angle in the drift margin near Salamanca but the study was not sufficient.

Field trips. All field work was done on Tuesdays with the exception of one trip which was postponed until Thursday because of illness of one of the class. The trips covered the valley from Warren, Penna. to Olean, N. Y. with some brief excursions over the adjacent highlands. All trips were in the writers personal car and at his expense. No exact record was kept of the mileage but it totaled approximately 550 miles. On the last three trips one visitor was taken each time.

Research. The problem assigned to the writer by Dr. Adams for personal research was that of the Water Supplies of the Park. This study involved mainly engineering and sanitary problems. Much aid was recieved from the County and State health authorities. Thanks to cooperation by the new Superintendent, Mr. A. T. Shorey, experimental work on protection of wells from surface contamination was undertaken. The results of this research are confidential.

Special field trips. On Sunday, Aug. 14 the writer took a group of 9, including only two students, to the Park "rock city". He also accompanied Dr. Gordon's class to the Hearts Content forest in Pennsylvania and explained the physiography of the region to the party. The writer spent two days with Prof. L. W. Floger of Syracuse University going over the Cattaraugus quadrangle which he is mapping. The hypothesis of interglacial stream gorges was advanced to explain some of the peculiar topographic features and was favorably received by Prof. Floger. A trip to the Finger Lakes with one of the students and probal Prof. Floger is planned at the date of writing.

Weather Bureau. The A. S. N. H. Weather Bureau was originated by Messers Gordon and Samuders as more or less of a joke. They first issued forecasts at 8 every morning for the following 24 hours. Later the writer joined the force and contributed an aneroid barometer to the maximum, minimum, wet and dry bulb thermometers which had constituted the sole instruments. After practice in making forecasts the time was advanced to 7 P. M. of the day before, maintaining the 24 hour period. When results indicated that these forecasts were reasonably accurate 36 hour and weekly forecasts were instututed. The forecasts included maximum and minimum temperatures.

and relative humidity. Some humorous and semi-humorous remarks were added to each bulletin, together with a criticism of the previous statement. It is felt that work of this type is of distinct value. It would be improved were a rain gauge available. A request was made by Mr. Shorey that future forecasts be telephoned to the Administration Building to be posted there for the interest of campers but owing to the lateness of the season the matter was not acted upon.

Collections. The writer spent considerable time in revamping the geological collection for the Outdoor Museum. New labels were made in the attempt to outline in a simple manner the main facts of the geological history of the Park region. Specimens presented by Messers Fuller and Snyder added materially to the value of the collection. A typewritten list of all specimens was prepared in case of loss of the labels. Every specimen is numbered on yellow paint and the letters "O.M." precede the number. All other identifiable specimens found in the laboratory and sent by the Buffalo Museum were also numbered on a yellow paintspot and a typewritten list prepared for filing. It is suggested that another year the specimens in the Outdoor Museum be changed so as to begin the setry next the entrance. The school collection of minerals and rocks for teaching of elementary geology are at present only fair. Considerable sets of igneous and metamorphic rocks taken from the adjacent glacial drift in the course of the field problem were left in the student case for future use if needed. It is suggested that the drawers in the main case which contains some valuable specimens, be nailed shut for the winter by driving small nails through the sides of the case. Such need not be driven all the way in and can be easily pulled next year. They will, however, deter anyone who might enter the building from opening any drawers.

Recommendations. The writer ventures to suggest that unless immediate steps are taken to thin out the trees and repair the roofs of many buildings the School will be minus a home inside of ten years. Another thought is that serious consideration should be given to the present policy of publishing reports on special features near to the School. So far it would seem that this policy has been justified but it is evident that the supply of research problems in advanced geology close by is far from inexhaustible particularly with the limited supply of reference books. It will assuredly become progressively more and more difficult to choose suitable problems for study in such a region of relatively simple geology and physiography. The same difficulty will also affect research problems for the geology instructor.

Sanitation. On the advice of the writer unsanitary conditions around the School well were temporarily corrected pending the installation of a central water supply system now under construction. Given a larger supply of water serious consideration should be given to a sanitary sewer system to cover at a minimum the faculty cabins and the kitchen waste. The present outdoor toilets for the faculty certainly add nothing to either the landscape or to health. A sewer could be laid along the creek bottom below the cabins at rather

low expense. Toilets could be placed either in the faculty cabins or in buildings adjacent to the present showers. Possibly the now useless space devoted to wash troughs could be thus utilized. The treatment plant, a septic tank and filter bed would be inexpensive and could be placed below the garages among the trees. Eventually the entire camp could be connected but conditions are less offensive in the student quarters.

Conclusion. In leaving the Allegany School of Natural History, probably forever, the writer wishes to express his thanks for the helpfulness and cheer offered by both faculty, students, and Park employees. Everyone in the Park, or connected in any way with it, has materially aided in his research problem. This fact has done much to alleviate the physical gloom of life in the damp forest, which is at times trying to one used to sunnier climates.

Respectfully submitted,

August 21, 1932

August 17, 1932

MEMO TO INSTRUCTORS

Please submit a brief report for your department for the session, arranged according to the following plan:

I Teaching.

1. Tell what courses were given and the number of students and number of visitors in each, giving such descriptive notes regarding each course as will make it possible at any future time for the school to answer inquiries regarding the work of students this year.

II Number of times bus was used and approximate total mileage and number of times private cars used with approximate total mileage.

III Research.

Please include a statement of research prosecuted, its title, progress and prospective date of completion.

IV Special Field Trips.

Mention week end or other trips open to other than members of the class (Sun. trips, for example) giving as nearly as practicable the number in attendance classified as members of staff, students, guests.

V Recommendations.

Recommendations regarding teaching equipment, research, or the school in general will be appreciated.

I should be glad to have the report by Monday, or earlier if feasible.

Yours very truly

RCC
Director

REC:ES

REPORT OF THE

The following report of the committee on the subject of the proposed amendment to the

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CATTARAUGUS COUNTY DEPARTMENT OF HEALTH

Bureau of Sanitation

June 1, 1931

To Water Works Officials:

Stream flow data gathered over a period of years for the purpose of hydro-electric development both in this country and in Europe has upon careful analysis revealed some very interesting facts, and has resulted in a mathematical method of foretelling the relative amounts of water available in years to come. This information can be applied to our own particular conditions with reference to drinking water supplies and drainage problems, particularly in glaciated areas where ground water storage is largely responsible for stream flow.

The two curves illustrated below show the actual observed and predicted stream flow of two large rivers each located in opposite parts of the globe. Both rivers, however, are similar in that their drainages are in glaciated areas which permits of enormous storage in the gravels and sands of such areas.

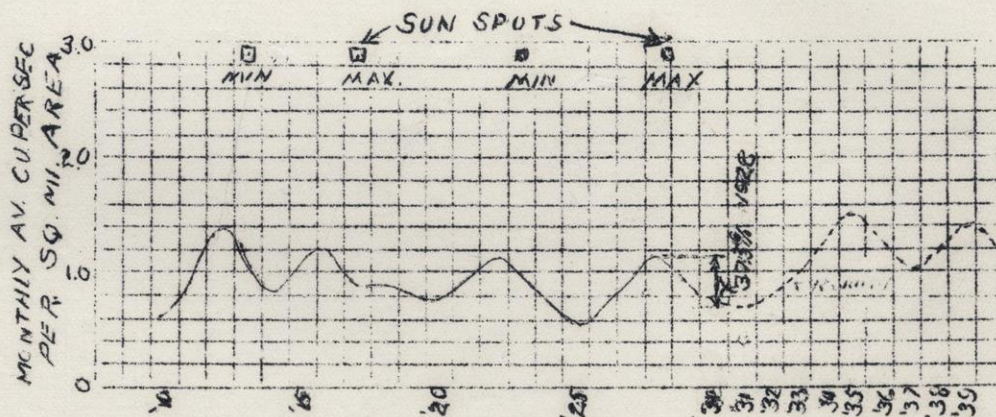


Fig. 1. Monthly average stream flow in cubic feet per second for the Muskegon River, Michigan, from 1905 to 1928, with predicted flow (dotted) from 1928 to 1939.

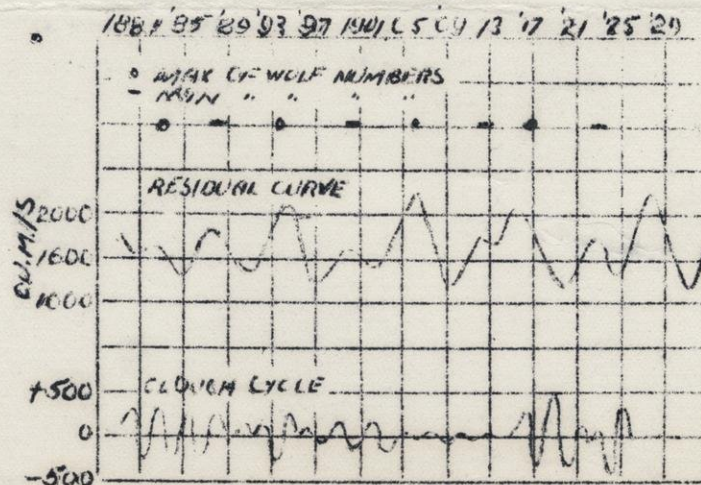


Fig. 2. Monthly average stream flow for the Dnieper River, Russia.

The Dnieper River is the third largest river in Europe. Muskegon River is a small river in western Michigan. Both are a source of hydro-electric development. The residual curve shown in each figure is the observed curve stripped of certain cyclic influences such as the "Clough Cycle".

In comparing the two curves the correlation between the maximum and minimum rates of flow is most striking. And what is still more noticeable is the fact that the residual curve which in each case from 1928 up to the present is entirely a predicted curve which has checked with the actual experience with surprising accuracy. The predicted residual curves are shown in Figures 1 and 2 as dotted lines. The Muskegon River shows the predicted residual curve up to 1939, while the Dnieper River curve was predicted up to 1933. The predicted curve for the Muskegon River checked within 5% of the actual flow in 1929, and checked within less than .5% of the actual experience for 1930.

Inasmuch as hydro-electric engineers are using these curves as the basis of hydro-electric power development with apparent success, it would seem that the above facts could be profitably used with respect to the development of auxiliary sources of water supply in time to relieve threatened shortages of some of our present water systems.

Conclusion

I. Study of these curves will show that we can expect 1931 to be our most critical year with respect to water shortages.

II. 1932 should be slightly better than 1930.

III. 1933 conditions should be better than 1932, and should be similar to those of 1929.

IV. 1934 should show a marked increase in stream flow over 1933.

V. 1935. In this year the stream flow should reach a maximum and will probably be the greatest on record.

If the hydro-electric people are willing to spend millions of dollars on the basis of these predicted amounts of available water for power purposes, it would seem highly desirable to prepare now to meet threatened emergencies by the expenditure of a small amount of money for auxiliary sources of water supply to meet possible low water conditions for this year and next.

References: Papers and Report by A. Strieff, Jackson, Michigan, published in "Monthly Weather Review", Jan.-Feb., 1931. Report of Stream Flow Prediction Committee, 1929-30.

Publications of the New York State Museum on natural gas and
petroleum, available or in press March, 1932

The following publications bear on gas and oil developments in
New York State:

1. Cir. 7: Recent Natural Gas Developments in South-Central New
York, by Newland and Hartnagel. (Issued Mar. 12, 1932)
(Free)
2. Bul. 294: Geologic Structure of the Devonian Strata in South-
Central New York, by Wedel. (In press)
3. Bul. 295: Mining and Quarry Industries of New York State for
1927-1929 (including a special chapter on the gas and
petroleum industry), by Newland and Hartnagel.
Price .40 (In press)
Reprint- Gas-Oil only, .25
4. Cir. 8: Some Preliminary Experiments on Oil Recovery Processes,
by Russell. (In press)

Address the Secretary, New York State Museum, Albany, New York

PRICE-LIST OF HANDBOOKS OF THE NEW YORK STATE MUSEUM

ALBANY, NEW YORK (March 1932)

- No. 1 Lobeck, A. K. A Popular Guide to the Geology and Physiography of Allegany State Park. 281p. illus. 1927. 80¢
- No. 2 House, H. D. & Alexander, W. P. Flora of the Allegany State Park Region. 212p. illus. 1927. 65¢
- No. 3 Bishop, Sherman C. The Amphibians and Reptiles of Allegany State Park. 134p. illus. 1927. Out of print
- No. 4 Shaw, W. T. The Spring and Summer Activities of the Dusky Skunk in Captivity. 100p. illus. 1928. 30¢
- No. 5 Taylor, Norman. The Vegetation of the Allegany State Park. 121p. illus. 1928. 40¢
- No. 6 Felt, E. Porter. A Popular Guide to the Study of Insects. 140p. illus. 1929. 40¢
- No. 7 Saunders, Aretas A. Bird Song. 202p. illus. 1929. 55¢
- No. 8 Harper, Harper & Fraleigh. (Adirondack Mammals and Their Habitats.) 176p. illus. 1929. 50¢
- Includes:
Harper, Francis & Harper, Jean S. Animal Habitats in Certain Portions of the Adirondacks.
Harper, F. Notes on Mammals of the Adirondacks.
Fraleigh, Lucy B. Habits of Mammals at an Adirondack Camp.
- No. 9 Goldring, Winifred. Handbook of Paleontology for Beginners and Amateurs, Part 1: The Fossils. 356p. illus. 1929. \$1.10
- No. 10 _____ Handbook of Paleontology for Beginners and Amateurs, Part 2: The Formations. 460p. illus. 1931. \$1.25
- No. 11 Krieger, Louis C. C. A Popular Guide to the Fungi (Mushrooms) of New York State. In press
- No. 12 Moodie, Roy L. A Popular Guide to the Nature and Environment of the Fossil Vertebrates of New York. 102p. illus. 1931. 45¢

- No. 13 Saunders, Aretas A. Butterflies of the Allegany State Park. In press
- No. 14 Goldring, Winifred. Guide to the Geology of John Boyd Thatcher Park and Vicinity. In press
- No. 15 Andrews, Edward D. Community Industries of the Shakers. In press

These Handbooks are bound in manila covers, size 5 x 7½ inches. The editions are only large enough to meet special needs.

The Handbooks are sent postage paid. Orders must be accompanied by remittance, at stated prices. Make checks or money orders payable to the New York State Education Department.

Address the Secretary, New York State Museum, Albany, N. Y.

LIST OF AVAILABLE PUBLICATIONS ON STRUCTURAL GEOLOGY AND
PALEONTOLOGY

NEW YORK STATE MUSEUM
ALBANY, N. Y.

March 1932

Our rules require payment in advance. Check or money order should be made payable to the New York State Education Department, addressed to the Secretary, New York State Museum, Albany, N. Y.

Bulletin No.

42	Ruedemann, Rudolf. Hudson River Beds near Albany and Their Taxonomic Equivalents. 116p. 2pl. map. 1901.	25¢
153	Miller, Wm. J. Geology of the Broadalbin Quadrangle, Fulton-Saratoga Co., N. Y. 66p. il. 6pl. map. 1911.	25¢
154	Stoller, Jas. H. Glacial Geology of the Schenectady Quadrangle. 44p. 8pl. map. 1911.	20¢
159	Kemp, Jas. F. The Mineral Springs of Saratoga. 80p. il. 3pl. 1912.	15¢
160	Fairchild, H. L. Glacial Waters in the Black and Mohawk Valleys. 48p. il. 8pl. 14 maps. 1912.	50¢
169	Cushing, H. P. & Ruedemann, R. Geology of the Saratoga Springs and Vicinity. 178p. il. 20pl. map. 1914.	40¢
170	Miller, Wm. J. Geology of the North Creek Quadrangle. 90p. il. 14pl. 1914.	25¢
172	Luther, D. D. Geology of the Attica and Depew Quadrangles. 32p. map. 1914.	15¢
185	Martin, Jas. C. The Precambrian Rocks of the Canton Quadrangle. 112p. il. 20pl. map. 1916.	30¢
191	Cushing, H. P. Geology of the Vicinity of Ogdensburg. 64p. il. 6pl. map. 1916.	25¢
192	Miller, Wm. J. Geology of the Blue Mountain Quadrangle. 68p. il. 11pl. map. 1916.	25¢
195	Fairchild, H. L. Postglacial Features of the Upper Hudson Valley. 22p. map. 1917.	25¢
209-10	Pleistocene Marine Submergence of the Hudson, Champlain and St. Lawrence Valleys. 75p. il. 25pl. maps. 1918.	50¢
211-12	Miller, W. J. Geology of the Lake Placid Quadrangle. 104p. il. 14pl. map. 1918.	35¢
213-14	Geology of the Schroon Lake Quadrangle. 102p. il. 14pl. map. 1918.	35¢
215-16	Stoller, J. H. Glacial Geology of the Cohoes Quadrangle. 49p. il. 2pl. map. 1919.	25¢
217-18	Chadwick, George H. Paleozoic Rocks of the Canton Quadrangle. 60p. il. 12pl. 1919.	35¢
225-26	Berkey, C. P. & Rice, Marion. Geology of the West Point Quadrangle. 152p. 56pl. map. 1919.	75¢
229-30	Kemp, Jas. F. Geology of the Mount Marcy Quadrangle. 86p. 25pl. map. 1920.	75¢

Bulletin No.

- 241-42 Hartnagel, C. A. & Bishop, S. C. The Mastodons, Mammoths and Other Pleistocene Mammals of New York State. 110p. il. 25pl. 1921. 50¢
- 245-26 Miller, W. J. Geology of the Luzerne Quadrangle. 66p. il. 11pl. map. 1921. 65¢
- 255 _____ The Geological History of New York State. 130p. pl. map. 1924. 75¢
- 256 Fairchild, H. L. Evolution of the Susquehanna River. 99p. il. 39pl. map. 1925. 75¢
- 280 Brigham, Albert P. Glacial Geology and Geographic Conditions of the Lower Mohawk Valley. A survey of the Amsterdam, Fonda, Gloversville and Broadalbin Quadrangles. 131p. il. figs. 1929. \$1.50
- 281 (Geological Papers) 110p. il. 1929. \$1.00
- Slater, G. The Structure of the Drumlins Exposed on the South Shore of Lake Ontario.
- Smith, B. Recent Finds of Quaternary Mammals at Syracuse, New York.
- _____ Influence of Erosion Intervals on the Manlius-Helderberg Series of Onondaga County, N. Y.
- Bryant, W. New or Little Known Fossil Fishes from the Hamilton Shales of New York.
- _____ A New Coccosteus from the Portage Shales of Western New York.
- Ruedemann, R. Note on Oldhamia (Murchisonites) occidentis (Walcott).
- Buddington, A. Granite Phacoliths and their Contact Zones in the Northwest Adirondacks.
- 285 Ruedemann, Rudolf. Geology of the Capital District. (Albany, Cohoes, Troy and Schenectady Quadrangles). 220p. 1930. map. \$1.50
- 286 (Geological Papers) 157p. il. 1931. 70¢
- Hudson, G. The Faults Systems of the Northern Champlain Valley, New York.
- _____ & Cushing, H. The Dike Invasions of the Champlain Valley, New York.
- Newland, D. H. An Occurrence of Peridotite near Ogdensburg, New York.
- Smith, B. Notes on the Clintonville Dikes, Onondaga County, New York.
- vonEngeln, O. A Preglacial or Interglacial Gorge near Seneca Lake, New York.
- Ruedemann, R. Age and Origin of the Siderite and Limonite of the Burden Iron Mines near Hudson, N.Y.
- Bryant, W. Supplementary Note on Coccosteus angustus.

Memoir

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| 1 | Beecher, C. E. & Clarke, J. M. Development of Some Silurian Brachiopoda. 96p. 8pl. 1889. | \$1.00 |
| 10 | Eastman, C. R. The Devonian Fishes of the New York Formations. 36p. 15pl. 1907. Cloth. | \$1.25 |
| 14 | Clarke, J. M. & Ruedemann, R. The Eurypterida of New York. Vol. 1; Text 440p. il; Vol. 2; 188p. 88pl. 1912. Cloth. | \$4.00 |

Handbook

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| 1 | Lobeck, A. K. A Popular Guide to the Geology and Physiography of Allegany State Park. 288p. il. 135figs. map. 1927. | 80¢ |
| 9 | Goldring, Winifred. Handbook of Paleontology for Beginners and Amateurs, Part 1: The Fossils. 357p. 97 figs. 1929. | \$1.10 |
| 10 | Handbook of Paleontology for Beginners and Amateurs, Part 2: The Formations. 460p. il. 1931. | \$1.25 |
| 12 | Moodie, Roy L. Popular Guide to the Nature and Environment of the Fossil Vertebrates of New York. 105p. il. 1931. | \$.45 |

In press

- Bulletin 290. Balk, R. Geology of the Newcomb Quadrangle.
 Bulletin 291. Trainer, D. W. The Tully Limestone of Central New York.
 Bulletin 294. Wedel, A. A. Geologic Structure of the Devonian Strata of South-Central New York.

MUSEUM MEMOIR 15: WILD FLOWERS OF NEW YORK

This work in two volumes, contains 264 colored plates in addition to numerous photographic illustrations, and descriptions of over 400 of the most conspicuous wild flowers of the State. The introduction contains a chapter on the structure of the plants, with particular reference to flowers and leaves, and is illustrated with drawings. The author of the work is Dr. Homer D. House, State Botanist of the State Museum.

The first edition was issued in 1918 (now out of print) and a reprinted edition was issued in 1923. This reprint edition is sold for \$7, for the two cloth-bound volumes, transportation paid within New York State only. The two volumes, weigh 14 pounds. Postage to Canada \$1.96.

There is also issued in portfolio form a set of the 264 colored plates of the two volumes on the Wild Flowers of New York, and this set is sold at \$2.50, postage additional. The portfolio weighs 5 pounds. Postage to Canada 70 cents.

Orders must be accompanied by remittance, at stated prices. Make checks or money orders payable to New York State Education Department.

Address the Secretary, New York State Museum, Albany, N. Y.

MUSEUM MEMOIR 12: BIRDS OF NEW YORK

Volume 1 of this work is devoted to the water and game birds, and contains besides 150 pages of tables showing distribution by counties, and migration lists, 390 pages of text and 42 colored plates. A number of maps show the range of certain species, and charts illustrate the distribution of species breeding in various life zones. Many text cuts reproduce photographs of birds, their nests, eggs and young.

Volume 2 treats of the land birds, and begins with chapters on the ecology of birds or the relation of birds to their environment. In this volume there are 443 plates of text and 63 colored plates, besides numerous photographic text figures.

Altogether 411 species are described and their habits, ecologic relations, distribution and economic importance are discussed. The text is by Professor Elon H. Eaton of Hobart College and the colored plates by Louis Agassiz Fuertes.

The work, in two quarto, cloth-bound volumes, was published in two editions. Volume 1 of the first edition was issued in 1910 and Volume 2 in 1914. This edition is out of print.

The reprint edition was issued in 1923 and is sold in sets only, at \$6 for the two volumes, transportation additional. The two volumes weigh 15 pounds. Postage to Canada \$2.10

There is also issued in portfolio form, a set of the 106 colored plates published in the two volumes of the Birds of New York. This set of plates is sold at \$1.20 postpaid. (to Canada \$1.40).

Orders must be accompanied by remittance, at stated prices. Make checks or money orders payable to New York State Education Department.

Address the Secretary, New York State Museum, Albany, N. Y.

Our rules require payment in advance. Check or money order should be made payable to the New York State Education Department, addressed to the Secretary, New York State Museum, Albany, N. Y.

Bulletin No.

17	Merrill, F. J. H. Road Materials and Road Building in New York. 52p. 14pl. 2 maps. 1897.	15¢
58	Whitlock, H. P. Guide to the Mineralogic Collections of the New York State Museum. 150p. il. 39pl. 11 models. 1902.	40¢
151	Newland, D. H. Mining and Quarry Industry of New York 1910. 82p. 1911.	15¢
161	_____ Mining and Quarry Industry of New York 1911. 114p. 1912.	20¢
166	_____ Mining and Quarry Industry of New York 1912. 114p. 1913.	20¢
174	_____ Mining and Quarry Industry of New York 1913. 111p. 1914.	20¢
190	_____ Mining and Quarry Industry of New York 1915. 92p. 1916.	15¢
223-24	_____ The Mineral Resources of the State of New York. 315p. il. 3 maps. 1919.	50¢
275	Alling, H. L. The Geology and Origin of the Silurian Salt of New York State. 139p. 19 figs. 1928.	45¢
277	Newland, D. H. & Hartnagel, C. A. Mining and Quarry Industries of New York State for 1925-26. 126p. 1928.	50¢
X 282	Nevin, Chas. M. The Sand and Gravel Resources of New York State. 180p. il. 1929.	\$1.00
283	Newland, D. H. The Gypsum Resources and Gypsum Industry of New York State. 188p. il. 1929.	\$1.00

Memoir

13	Whitlock, H. P. Calcites of New York. 190p. il. 27pl. 1910. Cloth.	\$1.00
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In press

Bulletin 295.	Newland, D. H. & Hartnagel, C. A. Mining and Quarry Industries of New York State, for 1927-1929 (including a special summary of gas and petroleum developments). (Separate Gas-Oil paper - 25¢)	40¢
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Circular 7.	Newland, D. H. & Hartnagel, C. A. Recent Gas Developments in South-Central New York. (Issued Mar. 14, 1932)	Free
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NEW YORK STATE MUSEUM

ALBANY, N.Y.

MEMORANDUM FOR TEMPORARY FIELD GEOLOGISTS OF THE
NEW YORK STATE MUSEUM, WORKING ON QUADRANGLES

1. In conducting all field studies, strict attention should be paid to the requirements of the Official Regulations regarding expenses, including Memorandum No. 1 accompanying these directions.
2. Decide before going in the field, what equipment and supplies are needed and take them with you, or make arrangements with the Secretary to have supplies sent you at proper intervals. Purchases duplicating supplies furnished cannot be allowed.
3. Photographic equipment and supplies will be furnished by the Museum, and all photographs, films, and negatives are the property of the Museum. Each one will be furnished a sample photograph record envelope which will show the character of the data needed. Give special attention to securing good photographs of important outcrops, and particularly of temporary exposures. Reference to the photographs taken should be made in your field notes.
4. Good representative samples of rocks, fossils, or both, are to be made as a part of the work, and these collections are the property of the Museum. These are to be carefully numbered and catalogued. In case you desire to secure duplicates provision should be made for this in advance by a special arrangement. Rock sections are the property of the Museum.
5. The original notes and maps of your field work are to be recorded in the standard Note Books furnished by the Museum, and

these are the property of the Museum. At the conclusion of your report the Note Books are to be filed with the Museum and your obligations are not completed until this is done.

6. Each author will be furnished free, 100 copies of his printed report, and in the case of smaller papers, 100 reprints.

7. Each quadrangle map should indicate clearly the borders of formations observed or inferred.

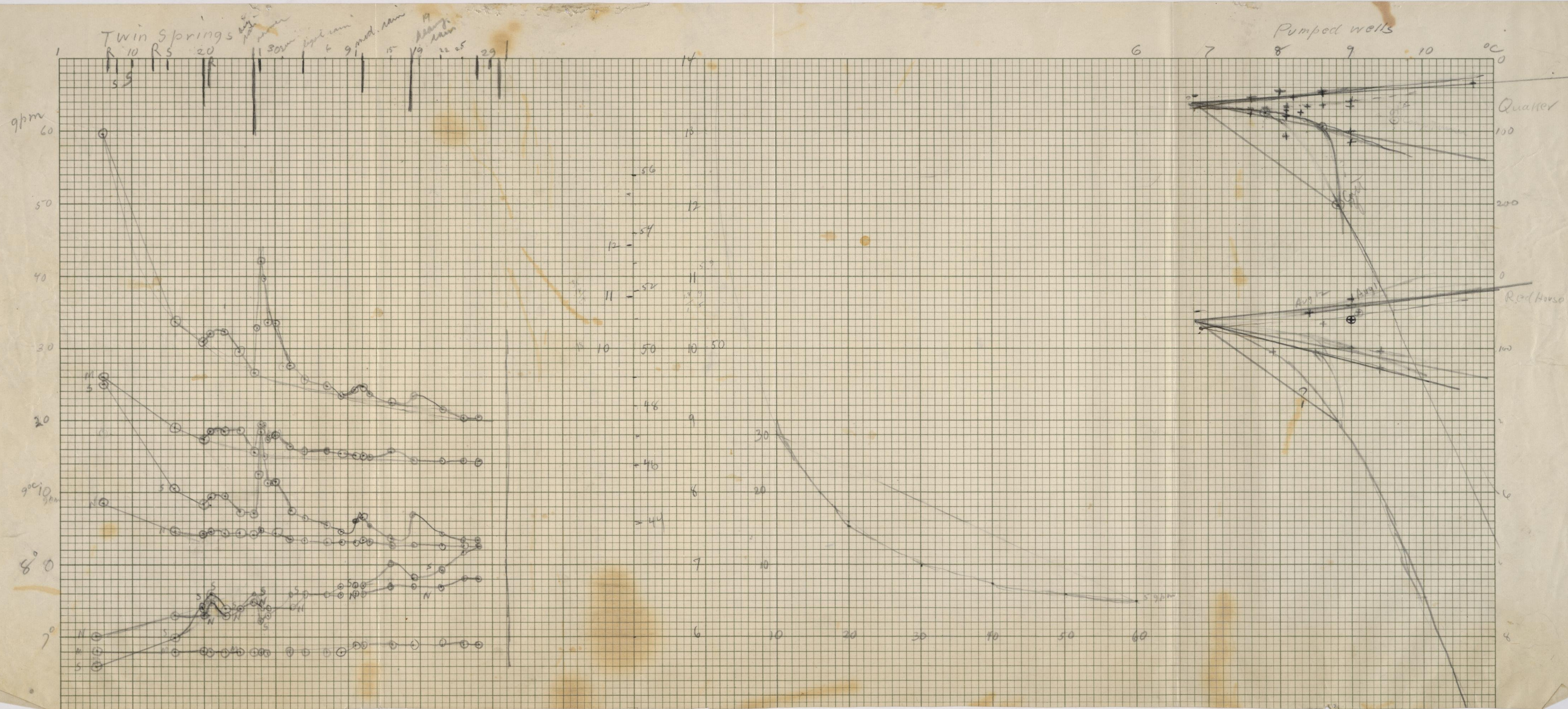
8. The report on each quadrangle is to include the Pleistocene, physiography and economic deposits.

9. Each report is to contain a chapter serving as a guide to the study of the local geology and physiography.

10. The results of your investigations are not to be made public without the permission of the Director.

Chas. C. Adams,
Director, New York State Museum.

May 18, 1932.



Oct. 13, 1933

Dr. A. C. Tester,
Dept. of Geology,
University of Iowa,
Iowa City, Iowa

Dear Tester:

I am sending with this letter my logs of the two test holes in Allegany State Park. These were based upon such examination as I had time to make. They are to be published in my report on the underground waters and are, therefore, to be held as "confidential" until that is out which probably will not be long. The same applies to the cross section which is a copy of an illustration for that report.

The samples went forward a few days ago, the rest going to Albany for permanent storage.

I am now taking advantage of the few students that I have this year to clean up the last odds and ends resulting from my visit to the A. S. P. Among these is a report on the research which I made on the high terraces of Allegheny River and literature relating to them. I find that Lebeck entirely overlooked the early reports by Chamberlin and Leverett which as long ago as 1890 placed the higher terraces as pre-Wisconsin. This correction shows why he was surprised at the slight amount of lake sediment and the lack of shoreline features in the lakes shut in by the highest outwash. I also made a study of the supposed terminal moraine at Elkdale and decided that it is a terrace remnant as originally mapped by Lewis. However, I decided that the drift at Allegany is outwash and not the moraine as Lewis supposed (followed by others down to the present but not by Lebeck). I hesitate about making these conclusions widely known for fear that they might react against Lebeck's fine report on the Park. He simply was not familiar with the Pennsylvania literature and, moreover, came from the East where multiplicity of glaciation is not stressed. You may remember that Martin was very sceptical of all "old drifts" and imbued me with a similar viewpoint which it took much study and many hard knocks with others and with the facts to overcome. However, I felt that as another westerner invading the east I should let you know what I thought.

My report also will contain a cross section of Red House valley at the dam showing a lake clay buried under a thick deposit of river gravel. This is also clearly understood under the theory that the terraces are outwash of more than one glacial stage. Can send you a blueprint of this section if you want to see it.

When finished I will turn over my report to Dr. Adams to do what he wants with it. I should think that it should be considered by those interested in the region but not published.

With best regards,

Sincerely,

Oct. 18, 1933

Miss Carol Y. Mason,
Dept. of Geology and Geography,
Milwaukee-Downer College,
Milwaukee, Wisconsin

Dear Miss Mason:

I wish to thank you for yours of the 9th with enclosed notes which I am returning herewith. They are not so bad as you seem to think and with some slight correction (Made in red pencil) helped very greatly in making some rather definite correlations. Not counting the Clarendon deposits of which the top is not known I found three and possibly four distinct groups as follows: Warren 220 feet above river possibly including the Onoville rock terrace; a group at 150 to 160 feet including Hotchkiss Hollow high level, Quaker Run, Pine Creek, and Wolf Run; a large group at 140 to 120 feet but possibly eroded parts of the last named including State Line, Cricks, Red House, Salamanca, and north side at Allegany; and a well defined group at 85 feet including Hotchkiss Hollow low terrace, Quaker Run low terrace, Breeds Run, and south side at Allegany. One striking fact is that the first two groups do not occur above the Steamburg inlet. This fact was known to Leverett before 1894 and the pre-Wisconsin age was also known to him then. In 1930 he published a short notice correlating the higher New York terraces as Illinoian. Thus without any knowledge of the other's work we seem to check pretty well. We did not have these references at the School and Lobeck had overlooked them as indexed under Pennsylvania.

Could you kindly look again at your notes and see if we did not make some more readings on August 16? I well remember you going up through the brush to the top of Red House terrace. If these are available would like to borrow them also to finish my report. An enclosing stamped envelope.

Things are bad here. I have only six students now in my one class and nobody applied for the other course offered. Just made the Wisconsin Rapids trip over the weekend. Saturday we go to the west end of the Baraboo Range. I will try not to forget to notify you of the Two Rivers trip next spring provided there is any University left and any of us have enough to be able to go (at times both these look questionable). The glacial geology text still languishes although we are trying to retype it. The illustrations are finished and advance copies are ready for sale. Have disposed of quite a few.

Thanking you again,

Sincerely,

F. T. Thwaites

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
MILWAUKEE-DOWNER COLLEGE
MILWAUKEE, WISCONSIN

October 9, 1933

Mr. F. T. Flinwaite
Department of Geology
University of Wisconsin
Madison, Wis.

Dear Mr. Flinwaite:

Here are the data which you wished to borrow. I don't know how accurate they are, since those who read the instrument were inexperienced and some of the high terrace levels do not correlate very well, but you are welcome to use whatever may be of value.

I was sorry not to go to "Two Creeks" with your class last year.

Sincerely,

Carol Y. Mason

DEPARTMENT OF GEOLOGY AND GEOGRAPHY
MILWAUKEE-DOWNER COLLEGE
MILWAUKEE, WISCONSIN

October 23, 1933

Mr. F. J. Thwaites
University of Wisconsin
Madison, Wisconsin

My dear Mr. Thwaites, -

I seem to have overlooked the enclosed sheet when I sent you my other notes. I hope this will give you what you need. I am sorry to hear that your enrollment is so low, but hope that the spring trip to Two Rivers will be taken and that I can go along.

Our enrollment is not so low as it might be. I have had three all-day field trips and one short one so far this fall, and have managed to get student cars for the class each time.

Sincerely yours,

Carol Y. Mason

Nov. 4, 1933

Miss Carol Y. Mason,
Dept. of Geology and Geography,
Milwaukee-Dowder College,
Milwaukee, Wisconsin

Dear Miss Mason:

I wish to thank you for yours of the 23rd with enclosed notes which I am returning herewith.

While at the recent Tri-State Field Conference in La Salle, Illinois, I had a talk with Dr. Tester and we both agreed that the high terraces are more likely of Iowan or Tazewell (Early Wisconsin) age than Illinoian as Leverett has stated in his progress reports. We based this opinion upon the relatively small difference in weathering and the rather moderate erosion of the high levels. But Leverett's opinion is based upon such long experience that it should have weight.

Now that I have written to you I probably will not forget to notify you of the spring trip to the Forest Bed and hope that you will be able to go.

Sincerely,

CHARLES C. ADAMS
DIRECTOR
ALVIN G. WHITNEY
ASSISTANT DIRECTOR

THE UNIVERSITY OF THE STATE OF NEW YORK
THE STATE EDUCATION DEPARTMENT

NEW YORK STATE MUSEUM

ALBANY, N. Y.

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D. H. NEWLAND
STATE GEOLOGIST
R. D. GLASGOW
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W. J. SCHOONMAKER
ASSISTANT STATE ZOOLOGIST
NOAH T. CLARKE
STATE ARCHEOLOGIST

November 15, 1933.

OFFICE OF DIRECTOR

Mr. Frederick T. Thwaites,
Department of Biology,
University of Wisconsin,
Madison, Wisconsin

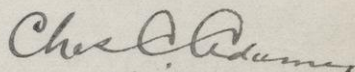
Dear Mr. Thwaites:-

The box of Allegany School well samples came October 9, but I expected some kind of memorandum from you about the samples, so have delayed acknowledging their receipt.

The samples were packed rather loosely in the box, so that quite a little of the contents of the bags was loose in the box, although I do not expect that the loss is of importance.

Please give me a memorandum about the location of the well, and any significant data to supplement that on the tags attached to the bags of samples.

Very sincerely,


Chas. C. Adams,

Director.

Nov. 20, 1933

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

In reply to yours of the 15th I regret to learn that the box of well cuttings was sent off imperfectly packed. When I finished it toward the first of the school year I had no time to wrap it up myself and the Geological Survey no longer has anyone to do this kind of work. I then asked the boy who does these things for the Department to finish packing, wrap it up, and have the stenographer address the box. Instead, I discovered, the stenographer tied up the box without wrapping or packing inside and sent it. It is hard to pack bags which are only partly filled, anyhow, as the labels prevent tight packing. I hope the loss was not important and want to add that the reason some samples were so small in amount was that they reached me in paper sacks many of which had burst. Tester told me his set came through all right.

The notes on the samples, drillers logs, letters, etc. regarding these test holes are enclosed. The same material is included in my manuscript and I did not hurry about sending these originals as I was waiting until the manuscripts on the Allegheny terraces and the Finger Lakes were ready.

Two carbons of the Allegheny report are enclosed. These are NOT FOR PUBLICATION. I wrote up this material before turning in the field notes mainly for my own satisfaction but also because it might help those interested in teaching at the School. Tester and I discussed the problem when at the Tri-State Field Conference in LaSalle, Illinois about three weeks ago. We found that we were essentially in agreement on the age of the terraces. Please do not consider the results as in any way a reflection on Lobeck. He evidently missed some of the literature on the Park region because it is indexed under Pennsylvania and then in the East the schools do not emphasize multiplicity of glaciation as we do in the west. Martin was always very scornful of the older drifts and imbued me with scepticism which it took many years experience and lots of hard knocks to overcome! Lobeck might be interested in seeing this report.

The short paper on the problem of the origin of the Finger Lakes as it appears to one familiar with the western Pleistocene will be ready soon after the first of the year. The block diagram of the region is now almost done and will be followed by similar ones showing hypothetical preglacial and interglacial drainage. This paper MAY be worth publication. Doubtless it would be severely pitched into but every new idea is apt to be treated this way at first! It is only a suggestion and should be so treated.

We haven't many students this year but seem to keep busy just the same.

Sincerely,

NY
Oct. 7, 1933

Miss Carol Mason,
Milwaukee Downer College,
Milwaukee, Wisconsin

Dear Miss Mason:

In cleaning up the loose ends of my visit to New York a year ago last summer I was compiling a brief summary of the observations we made on the Allegheny terraces. I then found that I had no record of the aneroid barometer elevation which we took on the terraces. If you have this material in such shape that you could lend it to me for a few days I would greatly appreciate it. The elevations of the high terraces are all that interest me.

I am very sorry that I forgot to notify you last spring of our trip in glacial geology. I was so busy with cutting expenses to be within the reach of the students that the matter slipped my mind. We did make a cut from \$13.00 each for all trips to \$5.45 each!

With best regards,

Sincerely,

F. T. Thwaites, Lecturer in Geology

N.Y.

Oct. 8, 1932

Prof. L. W. Floger,
Dept. of Geology,
Syracuse University,
Syracuse, New York

Dear Prof. Floger:

A few days ago I mailed you some separates of those of my papers which I thought you would be interested in. I looked for a copy of my manual on photography but found them out of stock and the stencils destroyed. Must have done this last year in order to make myself bring it up to date! Will send you a copy when revised.

I am enclosing the better photos of those I took when with Holmes and you at the Finger Lakes in August. You will note that the grade is very much poorer with Eastman film. The big camera also had Eastman film. The contrast with the photos taken in the Cattaraugus quadrangle is most striking. The remaining ones taken there are also enclosed. Of course, the weather was not so good but if you saw the rest of my pictures you would soon see that such fact is not a good alibi for Eastman. When I got home they had not heard of any shortage of Agfa film such as reported from Albany.

I made home in three days with a stopover in Columbus. Mayor was taken violently ill the first day out but seemed to be better before we got to his home in Columbus. Naturally this worried me a lot. When I got home Tommy surprised me by walking out to meet me.

Enrollment here is only 10.7 percent below last year so we are not so bad as some others. My classes are the same size as last year and some others are larger. Only a few were discontinued on account of the small number.

We are working on the glacial geology text. Mrs. Thwaites had typed all that I had ready by the time I got home. Now I have finished the first draft of the remainder and all the illustrations except one and some that I will do over again. Then we will have to decide how to publish it and what it will cost. Of course the pessimists will doubtless advise waiting but I am opposed if it is at all possible. We will have to see soon. Some of the people around here seem to be sunk in gloom but others are carrying on cheerfully. I hope that we can be counted among the last!

If Holmes would like some of the photos please let me know. I thoroughly realize that they are not very good.

I will always look back with pleasure to the very profitable trip with Holmes and you that week end.

I think that my cousin Richard Toole of Washington, D. C. is at your University this year.

With best regards to all the others who I met,

Sincerely,

Science Hall, Madison, Wis.
Jan. 10, 1932

Mr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Mr. Whitney:

In reply to yours of Dec. 13, 1933 and Jan. 4, 1934 I am returning the proof via express collect together with proof of illustrations and all originals. The CORRECTED copy of the references is enclosed.

That list of references seems to be hoodooed. I think this is the second time that the first copy has been returned to me for correction overlooking the revised copy. I am returning again a copy of the revised list to use instead of the other.

Mrs. Thwaites and I just finished correcting the proof last night.

In response to Dr. Adams' suggestion in a letter of Dec. 13 I attached a new paragraph at the end. If not satisfactory to him he is entirely at liberty to revise the same without waiting to write me.

With regard to points in yours of Dec. 13. No. 1 is all right with me provided it does not require any resetting of type. In general I do not want to be responsible for resetting of any type unless the error is either the fault of the printer or, if overlooked by us, is of vital importance. I feel that the risk of new errors does not justify resetting to make minor changes which should have been taken care of in the manuscript.

You are at liberty to cut the Contents all you please. I see no point in a long list where no pages are given.

The tables have been checked to the best of our ability and you will recall that Mrs. Thwaites edited some much more complex ones for our State Geological Survey. The editor balled up some of the headings of columns but I headlined the correct form on attached yellow slips.

Location of cuts was marked in manuscript. I have repeated this on proof.

The captions for the cuts were returned to Dr. Adams with some corrections. You will probably find that the smaller size type is the better.

I am sorry about the error in numbering the tables. I had them all right in the first draft but when Dr. Adams saw this at the park he got me to change it although I soon saw that no other publication numbered them that way.

We have been careful not to erase any of the Editor's marks. However, I do most violently object to his changing "gallons per minute" to "gallons a minute". So far as I have ever noted engineers always use the first form and the abbreviation "g.p.m." is universal in this country. In the first place, the change puts the text out of line with the figures and in the second place, it would discredit the report with engineers and well drillers.

With regard to No. 9 so far as I know only one Allen, A. F. Allen of the State Department of Health is mentioned in the report. I do not feel like having anything reset to insert initials.

Point No. 10. Mild steel pipe is commonly called by the trade name "wrought iron" but it is not iron and should not be confused with "genuine wrought iron". My usage is correct.

No. 11 has been taken care of in the copy sent to Dr. Adams.

No. 12 is taken care of in the general principle that I do not approve making changes in the type which ought to have been made before. Anyway I fail to see the point in adding the year when only one reference by the author is cited in the bibliography. As sure this would not have been required by the late Melvil Dewey many of whose typographical ideas appear to be still followed at Albany.

No. 13 has been taken care of by your second letter.

In regard to number of copies for me I am sure that 50 would be plenty. However, will be glad to learn the price in case I want to order some. This report is of more interest to engineers and public health people than to geologists. I may use some in connection with consulting jobs but that is about all.

I recently wrote to Mr. Lindberget the park to ask who the wells showed up in 1933 after the rebuilding program. If there is space when the pages are made up I have suggested to Dr. Adams that I be allowed to add a brief statement on this matter. As "the proof of the pudding is the eating" it would seem that such is desirable if it can be done without too much expense.

Very truly yours,

F. T. Thwaites

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STATE ARCHEOLOGIST

OFFICE OF DIRECTOR

January 4, 1934

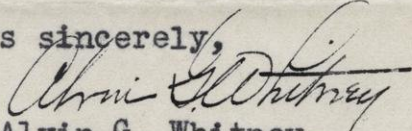
Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

Upon reviewing the status of printing of your Museum Circular 11: Ground-waters of Allegany State Park, I note that I asked you to hold the 18 galley proofs until we sent you the lacking proof of the Bibliography.

I now find that the printer has been holding the revised MS. of the Bibliography (P.63-64) until we returned corrected galley proof of rest, — intending to set all in page proof together. Therefore, will you please return the galley proof, together with the revised MS. of bibliography I now enclose. The latter carries all the corrections furnished by you previously. If you have any insertions to make, please attach to these pages.

Yours sincerely,


Alvin G. Whitney,
Assistant Director.

AGW:MC

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STATE ARCHEOLOGIST

December 18, 1933.

OFFICE OF DIRECTOR

Mr. F. T. Thwaites,

Department of Geology,
University of Wisconsin,

Madison, Wisconsin

Dear Mr. Thwaites:-

Mr. Whitney informs me that he has sent on to you galley proof of your report on the Ground Waters of the Alleghany Park. I have been looking over your paper again, and note that in your "General Conclusions and Recommendations" you do not suggest that the Park officials should have a general plan or policy with regard to the locating of camps based on careful technical and scientific study. That the locations selected for development should include provision for the water supply and sanitation. They need a comprehensive camping plan and policy, and this would require technical studies of the physical conditions of the Park, and an intelligent plan for its utilization.

We are trying to impress the Park officials that these studies should be made in advance, and not after they are in trouble, and are trying to remedy gross blunders due to inadequate technical advice.

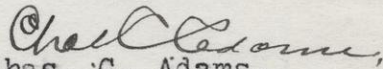
Mr. F. T. Thwaites

2

December 18, 1933.

I am sure you will see the need of making this point.

Very sincerely,


Chas. C. Adams,
Director.

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OFFICE OF DIRECTOR

December 13, 1933

Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wis.

Dear Dr. Thwaites:

Under separate cover I am sending you the galley proof of your Circular 11: Ground Water (18 galleys, but not including the Bibliography, which has not yet come from the printer). The package also includes the original MS. and originals and proofs of the 17 line cuts and halftones.

Please note the following points:

1. Will it not be better to combine your "Introduction" and "Acknowledgments" under one heading, — as Introduction? This is our usual practice.
2. Can not the "Contents" table be reduced to about half a page, retaining only the main section heads? (Of course leave all heads and sub-heads in text as are.)
3. Are the tables set up satisfactorily? Please check them carefully.
4. Please indicate on margin of galleys about where you wish each cut (or page of cuts) placed. Make up into pages wherever you think desirable; but as the captions are unusually long, only one or two at most can go on a page. (See sample circular.)
5. Captions for cuts not yet set in type. I enclosed the originals in case you care to alter them. The Department editor has indicated deleting the personal reference on caption of Figure 15. Do you wish these captions in 10-pt type like text, or in 8-pt to save space?

6. You will recall that you numbered the tables as figures when submitting MS. This necessitated re-~~nu~~numbering all the 17 drawings and photos, leaving in same order. Please check on this, to obviate error.
7. The Department editor's office has indicated many questions. Please answer every one by correction or by drawing a line through their marks. Do not erase any marks, as this is the Editor's copy I'm sending you.
8. The red and blue pencil and pen and ink alterations on the MS. are the Department editor's, not ours; so if anything not acceptable, please advise me and I will take it up with him. (Especially note that their system does not allow for capitalizing the second word in physical or cultural feature names. Indicate restoration of capitals where you feel it necessary.)
9. MS. page 16, line 6: What "Allen" is meant? Suggest the initials be inserted.
10. MS. p.16, l.10: Is the word "mild" in "black mild steel pipe," correct?
11. *done* Figure 11: Relation of depth to temperature in wells. Our Mr. Hartnagel, when reading the MS., suggested a reference to Table 5 be added to the caption. Please consider.
12. References in the text to the bibliography should be uniformly like this: "Lobeck, '27, p.159" (with or without page reference). I emended these in some cases, but please check throughout for uniformity.
13. The MS. bibliography, sent to printer as finally corrected, on October 6, has not come to us in proof. But as we expect it daily, please hold everything until you hear from me again (probably by next week).
14. A new State law restricting distribution of publications make it questionable whether we can furnish you 100 free author's copies of the completed Circular (possibly not over 50). If not, will you care to purchase any, at the reduction we usually are able to get for an author, providing his copies are run off with the regular edition?

Yours very truly,

Alvin G. Whitney
Alvin G. Whitney.

Add to end of text:

Future camps in the park should be located after careful study of water supply and sanitation by competent authorities.

Dr. Charles G. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

After sending you a letter yesterday enclosing manuscript of captions of illustrations for my report I remembered that I did not ask you if you received my letter of several weeks ago enclosing full data on the Quaker Lake test holes and two copies of report on terraces of Allegheny River?

The report on the Finger Lake problem is partly done but is held up by other matters including a plan to finish at once my text book of glacial geology.

Very truly yours,

F. T. Thwaites

P. s. Thank you for the Christmas card.

Individual wells

may be identified in the figure by comparing the depth and temperature with those given in table 5. A longer period of observation would have enabled the drawing of curves for other times of the year above the depth of 60 feet.

Jan. 3, 1934

Dr. Charles C. Adams, Director,
New York State Museum,
Albany, New York

Dear Dr. Adams:

Reply to yours of Dec. 18 was delayed because I was waiting for the last of the proof of my report. Also I have been out of town twice during the recess. As the proof has not yet arrived I am returning herewith the original copy of the figure captions with some corrections.

The addition of a short paragraph at the end embracing your suggestion as to advance studies will be taken care of when I return the proof. I wish to thank you for suggesting it.

An enclosing copy of a letter to Lindberg asking about the working out of the well rebuilding program in 1933. What do you think about adding a short reference to this?

We are now checking the proof. The only point on which I fail to agree with your editor is the changing of the conventional "gallons per minute" to "gallons ~~a~~ minute". This struck me as entirely unnecessary and likely to lead to disrespect on the part of engineers who always use the first form of statement. I most emphatically object. In a number of other usages I can see the influence of the late Melvil Dewey but will pass them without comment. I do, however, object to further editing of the proof by making changes in the type which were not in the manuscript which are not vital. My attitude on this is not to save the printer money but to avoid the errors which are sure to come if he has to reset so much of the copy which is now correct. Of course, if there is an important point which is vital to clarity which was overlooked by the editor of the manuscript I will change it. Such things will be indicated in red on the manuscript. I will repeat these remarks when I return the proof to Mr. Whitney.

With best wishes for the New Year,

Sincerely,

F. T. Thwaites

Jan. 5, 1934

Mr. O. R. Lindberg, Chief Ranger,
Allegany State Park,
Red House, New York

Dear Mr. Lindberg:

My report on the water supplies of the park is now in proof and this brought to my mind to ask what your experience was in 1933 with the rebuilt wells. Could you please send me a short summary of the 1933 tests? I do not know if I will be allowed to add it to my report or not but in any event it would be most helpful to me.

In talking with well drillers and engineers about your problem of protecting the well tops it was brought out that it is very difficult to pack the base of an ordinary pump with only a rubber gasket. This is because the pump base is bell-shaped and is only a rough casting. I would suggest that tar like that used on roofs be poured hot just before the pump is set. I noted that they have done this at Devils Lake State Park near here. The Superintendent there told me that this fixed the trouble.

I am now at work on the water supply problem for the city of Oshkosh, Wisconsin.

I often think of my summer in the Park and wish that I could see some of the people there again.

With best wishes for the New Year,

Sincerely,

F. T. Thwaites

Copy to Dr. Adams

New York

Jan. 24, 1935

Dr. Alvin G. Whitney, Assistant Director,
New York State Museum,
Albany, New York

Dear Dr. Whitney:

In reply to yours of the 16th I recieved the 100 free copies of Circular 11 and thank you greatly for them. I have not discovered any errors although the make-up could have been so arranged as to save a lot of space.

Are you sending copies to the persons listed on page 2 as having aided in the work? If you are I do not want to duplicate them but if you are not then I will be glad to take care of them. There have undoubtedly been some changes of address since I was in your state and will greatly appreciate knowing of any which you have record of.

Enclosed are some of the originals of the illustrations which I have neglected to enclose every time I wrote.

With best regards to Dr. Admas,

Sincerely,

F. T. Thwaites

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OFFICE OF DIRECTOR

January 16, 1935

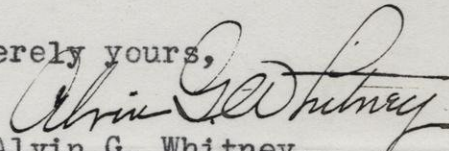
Dr. F. T. Thwaites
Department of Geology
University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

Under separate cover I am sending
you 100 author's free copies of Museum Circular 11,
issued today.

Please let us know if you find any
errors in the printing.

Sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC

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OFFICE OF DIRECTOR

February 7, 1935

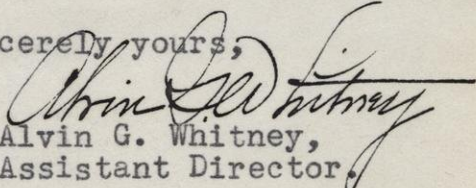
Dr. F. T. Thwaites
Department of Geology
The University of Wisconsin
Madison, Wisconsin.

Dear Dr. Thwaites:

Responding to your letter of January 24, I called Dr. Adams' attention to the question as to whether he was sending out copies of your Museum Circular 11 to all the persons listed on page 2. I gather that he has mailed the paper to some of these, but that in the case of others he is delaying for certain reasons; and that he will take it up with you or me later. He has asked me to hold the matter in abeyance, and this letter is merely to acknowledge yours.

I suppose there would be no harm in duplicating in a few cases, as we have a fairly large edition.

Sincerely yours,


Alvin G. Whitney,
Assistant Director.

AGW:MC

COPY
for Mr. Thwaites

CATTARAUGUS COUNTY DEPARTMENT OF HEALTH

Bartlett Memorial Community Center

Olean, N. Y.

May 20, 1935.

Dr. Charles C. Adams,
Director,
New York State Museum,
Albany, N. Y.

Dear Doctor Adams:

I have received a copy of circular 11 on the
Ground Water Supplies of Allegany State Park 1932, by Professor
F.T. Thwaites.

I would greatly appreciate a copy for myself, and Dr. E.K.
Kline has asked me to speak for him also.

There are about fifty persons whom I know who are interested
in such problems, and since we have supplied them with copies
of our salamander studies I would like to send them copies of
Professor Thwaites paper. He has done a very credible job and
his circular should be placed in the hands of people who can
make practical use of it. If you can spare fifty copies will
you please advise me what this would cost?

We have completed sampling fifty of the Allegany State Park
wells this year and have not had a questionable sample to date.

Thanking you in advance for a copy of Circular 11, I am

Very truly yours,

/S/ N. M. Fuller,
Sanitary Engineer.



THIS SIDE OF CARD IS FOR ADDRESS

Mr. Frederick T. Thwaites
University of Wisconsin
Madison, Wis.

July 21, 1939

Dear Mr. Thwaites:

Members of the alumni of the Allegany School are eager for news of former faculty members. Will you please use the other half of this card to tell us where you are this summer, and what you are doing. Have the correct address?

Allegany is cool and inviting as ever. Many more deer and bear are to be found in the woods than in former years. Most of them are quite tame and show very little fear of people.

With kindest regards

Sincerely Esther Eno

△ ALLEGANY SCHOOL OF NATURAL HISTORY △



△ ALLEGANY STATE PARK △ QUAKER BRIDGE, NEW YORK △

November 27, 1939

Mr. Frederick T. Thwaites
University of Wisconsin
Madison, Wis.

My dear Mr. Thwaites

The Allegany School of Natural History has been conducting for thirteen summers a unique educational project in the training of teachers and counselors of youth. We believe that the School has not received the attention which such a project deserves. More than 300 students from 28 states and the Dominion of Canada have been enrolled at various times in its courses. As far as we are aware, the Allegany School does not compete seriously with the regular summer schools operated by various colleges and universities.

Continuous and whole-hearted support has been given the School by the Buffalo Society of Natural Sciences and the Allegany State Park Commission, with the cooperation of such agencies as the New York State Museum and the University of Buffalo. Nevertheless, many of the students come from localities remote from the city of Buffalo and even outside of New York State. We, therefore, cordially invite you, as a representative in the field of education and as a former instructor at the School to become a member of an Advisory Board for the Allegany School of Natural History. We are earnest in our desire to make the School of greater usefulness in the field of science education. We anticipate the benefits of your valued counsel and advice in determining and modifying, if necessary, the educational policies of the "School in the Forest."

Your acceptance of membership on this board will by no means involve financial responsibilities. However we shall be pleased at all times to receive your comments regarding our educational policies, programs and personnel. We need your advice now as to proper and effective means of reaching those leaders of youth who will benefit from a season or two at Allegany. Later we shall ask your opinions on other urgent matters. We are sending under separate cover the School booklet in case you have lost track of your 1939 copy. An early and favorable reply will be deeply appreciated.

Very sincerely yours

Chauncey J. Hamlin

Chauncey J. Hamlin, President
The Buffalo Society of Natural Sciences

CJH:EWE

△ THE SCHOOL IN THE FOREST △ △ △ ESTABLISHED 1927 △

COOPERATING ORGANIZATIONS

UNIVERSITY OF BUFFALO
BUFFALO, NEW YORK
DR. SAMUEL P. CAPEN, CHANCELLOR

ALLEGANY STATE PARK COMMISSION
ALLEGANY STATE PARK
WILLIAM H. RYAN, CHAIRMAN

CONDUCTED BY

BUFFALO SOCIETY OF NATURAL SCIENCES
BUFFALO MUSEUM OF SCIENCE
BUFFALO, NEW YORK

CHAUNCEY J. HAMLIN, PRESIDENT

COLLEGE CREDIT COURSES

SCHOOL DIRECTOR

DR. ROBERT B. GORDON
STATE TEACHERS COLLEGE
WEST CHESTER, PENNSYLVANIA

ADMINISTRATION OFFICE

BUFFALO SOCIETY OF NATURAL SCIENCES
BUFFALO, NEW YORK
ESTHER W. ENO, SCHOOL REGISTRAR

~~xxxxxxx~~ 41 Roby Road,

Dec. 1, 1939

Dr. Chauncey J. Harlin,
Buffalo Society of Natural Sciences,
Buffalo, New York

Dear Sir:

In reply to yours of Nov. 27 I will be glad to do anything that I can to help with the Allegany School of Natural History.

I have always liked the policy of devoting an entire day to each science. However, the year (1932) that I was there I had only three students of whom only two finished the work so that I really know very little about problems there.

Very truly yours,

ALLEGANY SCHOOL OF NATURAL HISTORY

December 14, 1939

To date the following have consented to serve on the Advisory Board of the Allegany School of Natural History:

Charles P. Alexander	Department of Entomology and Zoology, Massachusetts State College
William J. Baerg	Department of Entomology, College of Agriculture, University of Arkansas
Sherman C. Bishop	Department of Zoology, University of Rochester
Samuel P. Capen	Chancellor, University of Buffalo
* Wayland M. Chester	Department of Biology, Colgate University
Fred W. Emerson	Department of Biology, New Mexico Normal University
William N. Fenton	Bureau of American Ethnology, Smithsonian Institution
Leon A. Hausman	Department of Zoology, New Jersey College for Women
Lawrence R. Hicks	Ohio Wild Life Research Station, Ohio State University
Leslie A. Kenoyer	Department of Biology, Western State Teachers College
Armin K. Lobeck	Department of Geology, Columbia University
William C. Morse	Department of Geology, University of Mississippi
James G. Needham	Department of Entomology, New York State College of Agriculture
J. Nelson Norwood	President, Alfred University
Theodore T. Odell	Department of Biology, Hobart College
Arthur C. Parker	Director, Rochester Museum of Arts and Sciences
Oscar W. Richards	Research Biologist, Spencer Lens Company, Buffalo, New York
Paul B. Sears	Department of Botany, Oberlin College
Laurens H. Seelye	President, St. Lawrence University
Edward S. C. Smith	Department of Geology, Union College
Frederick T. Thwaites	Department of Geology, University of Wisconsin
William P. Tolley	President, Allegheny College
William E. Weld	President, Wells College
*William H. Carr	Assistant Curator (Outdoor Education), American Museum of Natural History

BUFFALO MUSEUM OF SCIENCE
HUMBOLDT PARK
BUFFALO, NEW YORK



OFFICE OF THE
EXECUTIVE SECRETARY

December 15, 1939

Mr. F. T. Thwaites
41 Roby Road
Madison, Wisconsin

My dear Mr. Thwaites:

Mr. Hamlin has asked me to acknowledge receipt of your letter of December 1 and to express to you his appreciation of your willingness to serve on the Advisory Board of the Allegany School of Natural History.

For your information, I am enclosing herewith a list of twenty-four gentlemen who, to date, have accepted Mr. Hamlin's invitation.

Yours very truly,

Harold T. Clement
Executive Secretary

HTC:ED

BUFFALO MUSEUM OF SCIENCE
HUMBOLDT PARK
BUFFALO, NEW YORK

OFFICE OF THE PRESIDENT



January 29, 1941

Mr. Frederick T. Thwaites
University of Wisconsin
Madison, Wisconsin

Dear Mr. Thwaites

You will, I am sure, join with us in our regret over the fact that it has become necessary for us to close the Allegany School of Natural History.

I am enclosing a copy of a letter which we are mailing to the members of the Advisory Board of the School. This is sent to you for your information.

I wish that it might have been possible for us to have carried on, but circumstances are such that we can not do so.

Yours very truly

Casimirus J. Hawlin

CJH:ES

BUFFALO MUSEUM OF SCIENCE
HUMBOLDT PARK
BUFFALO, NEW YORK

OFFICE OF THE PRESIDENT



January 29, 1941

In 1939 you courteously accepted our invitation to serve on the Advisory Board of the Allegany School of Natural History. It is with regret that we now have to advise you that, because of certain changes and circumstances, the Board of Managers of the Buffalo Society of Natural Sciences has decided, upon my recommendation, to suspend the activities of the School.

Through the fourteen years that it has been in successful operation the School, as you know, has always endeavored to maintain a high scholastic standard.

During the early years we benefited by the cooperation of the New York State Museum, under the leadership of Dr. Charles C. Adams. As a result of the work of a number of research men assigned by the State Museum to the teaching staff of the School, the State Museum was enabled to publish a splendid series of Handbook Guides and Circulars descriptive of the geology, flora, and fauna of the Allegany State Park. These publications not only serve as valuable teaching aids but also help to advertise the Park widely throughout the United States.

For the last twelve years the University of Buffalo has granted college credits to students who have satisfactorily completed certain of the School's courses. During recent years the University extended its cooperation by assigning one of its professors to the School's teaching staff.

January 29, 1941

The Allegany State Park Commission has made available the site for the School and has provided buildings and equipment for the housing of its students, faculty, and activities.

To the institutions and individuals who have so generously cooperated we are deeply grateful.

Since the opening of the School in 1927, four hundred eighteen students from twenty-eight states, the District of Columbia, and Canada have attended. We have always endeavored to keep in close touch with this growing alumni body, and it has been largely through their enthusiastic interest in the School that we have recruited our new student body each year. To all of these alumni who have been so much interested in the work of the School we also owe a debt of gratitude.

The decision to discontinue the School, reached only after most careful consideration by the Board, was based on a number of circumstances. Since the inception of the School the Society has been able to contribute the very valuable services of Professor William P. Alexander. Unhappily, for reasons of health, Professor Alexander has been obliged to retire. The present Chairman of the Allegany State Park Commission has expressed his desire to obtain increased revenue for the Park Commission through its rental of the cabins until now assigned to the students and camp visitors to the School. The national emergency with which we all are faced would have a definite effect upon future registrations. Finally, there has been a growing demand within the City of Buffalo for the development of summer nature courses at the Museum, a demand we shall try to supply with Staff members usually assigned to the School during its session.

Again we thank you for your interest in the School and regret the circumstances that have made it necessary for us to take such action.

Very cordially yours

CJH:ES

Chauncey J. Hamlin